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THE BRITISH JOURNAL OF PSYCHIATRY

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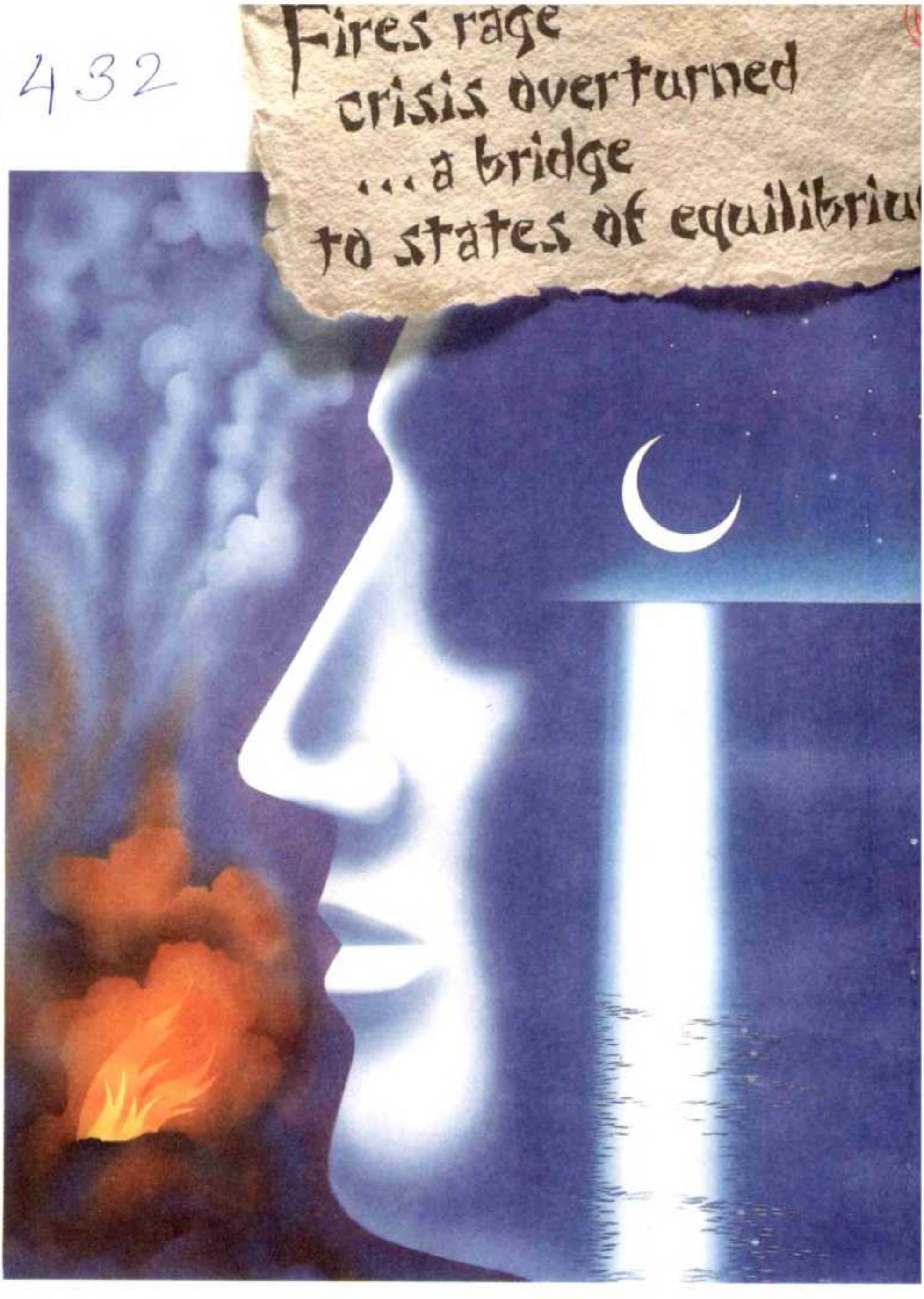

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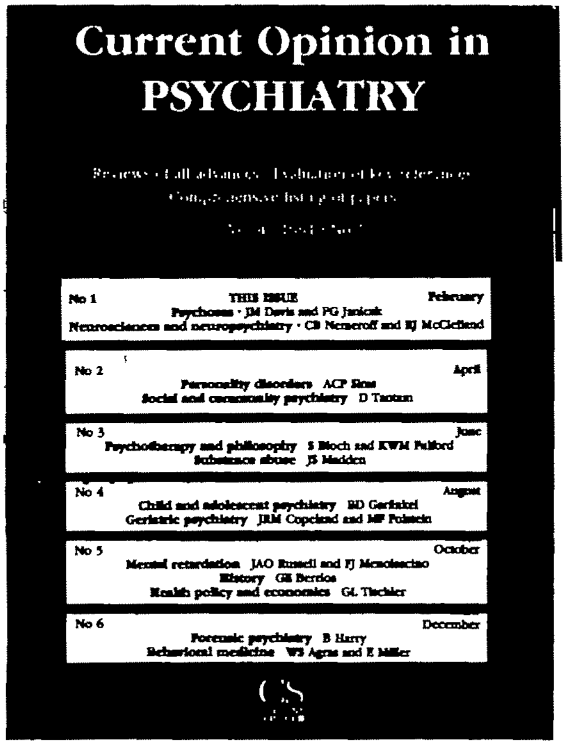

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Lecture

Psychiatrists and Citizens

J. L. T. BIRLEY

During the last two years, the medical profession in Britain has been participating in a public debate – perhaps in a more exposed way than for some time. Eminent Presidents have been writing letters to *The Times*, and less eminent ones demonstrating in Downing Street. This can all be seen as contributions to the discussion on the state of the National Health Service. But there is, I believe, a wider and in my view a more long-lasting change going on, namely the relationship between the medical profession and the public – the citizens of this country. You may feel that the basic premise is based on a false dichotomy, rather like the sterile debates on community care. Hospitals *are* part of the community. Doctors *are* citizens. Yet there is an implicit or explicit contract, social if not financial, between a country's medical profession and its citizens. As we are in the era of negotiating or inventing or specifying contracts, I wanted to consider this.

The psychiatrist's contract has certain special dimensions, which require our attention. The most obvious one is that psychiatric treatment may involve the loss of a patient's liberty for the purpose of compulsory treatment. The velvet glove of the confidential couch – upholstered and embroidered with our carefully nurtured skills in eliciting, encouraging, and accepting a person's expression of very personal, and often painful information – conceals the iron fist of our powers of compulsory control. This is, undoubtedly, an alarming combination. Without much difficulty it could be made to sound like the inquisition, where a solicitous concern for the state of a person's soul is combined with a well tried range of instruments of torture.

It is not, therefore, surprising that citizens have felt a need to be protected, and for the processes of compulsory care to be regulated. Many countries have appropriate legislation, and supervisory bodies to enforce it, appointed by government. Psychiatrists must serve on these bodies, as they provide a legally recognised framework for their actions and are bound to be theatres of debate and argument, where they will have to explain and argue for regulations which allow them to act so that a citizen receives prompt and effective treatment when this is indicated.

I have publicly declared, in a debate with Larry Gostin over 20 years ago, that compulsory treatment is not a threat but a right: "Every citizen should have the right to be admitted against his or her will, to be treated without loss of dignity, in a first class psychiatric service." Mental health legislation cannot, by itself, produce a first-class psychiatric service. Indeed, the legislation and the service exist in some sort of symbiosis, and reflect each other's standards.

A rather flagrant example of this occurred when the recent Code of Practice (for England and Wales) was published (Department of Health, 1989*a*). A preface was attached to the Code, written by different authors, which stated:

> "Changes to existing practices to conform to the Code can be made without any additional resources, simply by adopting new approaches to discharging responsibilities. Where adopting the recommendations of the Code would have significant resource implications, it is recognised that this can only be done as resources permit."

We protested that this was like saying that 'zebra crossings can be illuminated as resources permit'. But to no avail.

A similar sort of disclaimer is to be found in the widely circulated draft for care programmes:

> "Health authorities are expected to meet any costs arising from the introduction of more systematic procedures from existing resources. Introducing the care programme approach places no new requirements to provide *services* on either health or social service authorities. The introduction of the care programme approach does not place any new requirement on either health or social service authorities to provide the services assessed as necessary in order that a patient can be treated in the community rather than hospital. Social services authorities must judge, in the light of existing resources, augmented by the specific grant, what services they can provide to meet the social care needs of people with mental illness."

At any point where resources may seem to be required to fulfil these plans, a disclaimer is added which puts the responsibility for the allocation of resources firmly on district health and local authorities.

This seems a reasonable approach, if local authorities were allowed some financial latitude. But they are not. Coupled with this devolution downwards

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This paper was given as the Royal College of Psychiatrists' Presidential Address, July 1990.

is a firm central control of the amounts of money for which the local authorities can ask their citizens, to provide the services which they may require. This seems illogical and unjust. This state of affairs is causing anxiety all over Britain, to local authorities of all political persuasions. I understand that the Wandsworth Council (a 'Tory flagship' Council in south-west London) is contemplating a cut of over £4 million to its social services budget for 1991 in order to bring expenditure into line with the government's standard spending assessment and to avoid the dreadful alternative – a rise in the annual community charge by £130 per adult.

Psychiatric services will only enjoy the trust and confidence of our citizens if they are seen to be comprehensive, acceptable and effective. A combination of medical and social care is required. If one ingredient is inadequate, the performance of the other will be affected. The current Mental Health Act allows considerable powers for doctors to decide on compulsory care, without recourse to a lawyer. Patients may be admitted to hospital, compulsorily, for periods of three days, or up to six months, on the signatures of two doctors, and either a social worker or a close relative. After admission a person can appeal to a mental health tribunal – usually chaired by a lawyer – but there is no lawyer involved at the point of admission. This arrangement will continue to be debated, not only in Britain but in the European Community. Clearly it is putting a good deal of trust on the doctors, and social workers, and especially on their professional skills and ethics.

The arrangements today in Britain are not dissimilar from those prevailing in the mid-19th century. But towards the end of the century the situation changed – partly because of abuse, but mainly because of the deteriorating state of the overcrowded and understaffed hospitals. They had become gloomy and grim places, staffed by pessimistic doctors. In this setting, the Lunatics Friends Society agitated successfully for legislation which made all admissions dependent upon legal approval. Voluntary treatment did not reappear on the scene, in public hospitals at least, for some 40 years. It is certainly no accident that the recent radical mental health legislation proposed by a United Nations Committee comes from a group chaired by a Greek lawyer. In Greece, at present, there is grave public disquiet about the state of the public mental hospitals.

However, a government's supervisory role of psychiatry carries with it serious dangers. The supervision may lead to control, and psychiatry may become the tool of government. This has happened in the last 60 years, in two European countries – Germany and the USSR – and possibly elsewhere. Both these countries were tyrannies at the time. Citizens had ceased to have any influence on government and protest had become increasingly dangerous.

Nazi Germany provided the most horrifying example. It was a country where psychiatry and psychiatric research were highly developed and internationally respected. Indeed, some of these researchers encouraged the first moves towards 'eugenic measures' – the sterilisation of patients or even of healthy people with family histories of mental illness, including alcoholism. This was soon followed by the systematic extermination of certain categories of patients, especially long-stay patients and the mentally handicapped – including children. We must never forget that the first gas chambers for mass extermination were used not on political opponents, nor on Jews, but on psychiatric patients, on the grounds that they were 'unworthy of life'.

In Russia, the abuse of psychiatry has been based on more traditional grounds, which had been used in the time of the Tsars, for the incarceration of political opponents. Both the offence – any form of political opposition or dissent – and the punishment were products of a totalitarian state. In both Germany and Russia some psychiatrists connived with these measures, but it should be recorded that, in Germany, before these measures were started, a large number of psychiatrists resigned or were dismissed from their posts by the Nazis, and others resisted these measures and protected their patients – often at great personal risk.

We should all pay tribute to our colleagues in Germany who have courageously participated in the rehabilitation of psychiatry in the years since 1945, and in examining the facts and lessons of that appalling episode – and to our brave colleagues in both countries who spoke out against the abuses there, and endured dreadful suffering as a result (Meyer–Lindenberg, this issue, pp. 000–000). The rehabilitation of psychiatry in the USSR is only just beginning.

You may wonder what the relevance of this is to Britain in the 1990s, which is after all, a democracy. The National Health Service (NHS) is to continue and psychiatry has been seen as a 'priority' specialty for many years.

There are three aspects of our contemporary society which should concern us all here – both psychiatrists and citizens. The first is to do with stigma. The mentally ill are still a submerged and stigmatised group. Mental illness is common. Its so called minor forms, which often cause a great deal of distress and disability, make up nearly 20% of a general practitioner's work. A recent survey reported in the press that 85% of the population would give money to a children's medical charity, but only 14% to a medical charity for the mentally ill. This situation requires further examination and analysis, beyond the scope of this paper, but I do think that psychiatrists should consider very carefully whether they are contributing, in some way, to this state of affairs. Perhaps because we feel a bit uneasy ourselves, wondering whether we are 'not proper doctors', we resort to trying to disguise psychiatric problems and illnesses as 'just like any other sort of illness'. This is an over simplification with a long history. For instance:

> "Two causes contribute powerfully to retard our knowledge of and control over insanity. The first is the prevailing notion of its mysterious origin and nature as if it involved some deep moral stigma or was inseparably bound up with something of horror and altogether beyond the influence of the ordinary laws of animate nature. The second is the popular notion of the cruel treatment of lunatics, and the great aversion thence arising either to have the patients removed to an asylum or even to admit that insanity really exists.
>
> Before full justice can be done to the unhappy lunatic, these prejudices must be destroyed, and the wholesome and comforting truth made widely known, that insanity is neither an anomalous visitation of a mysterious Providence, nor an affliction involving any stigma, or incapable of cure. The public must be taught to regard it simply as a disease of the body arising from natural causes, governed by the ordinary laws of the animal economy and, like other diseases, amenable to proper treatment when early attended to; and they must be led to regard asylums as infirmaries for the cure and kind treatment of that disease, and resort to them with the same confidence as they now do to other infirmaries for a fracture or a fever. Insanity, rightly considered, involves no moral stigma any more than consumption or inflammation, and the sooner the atmosphere of mystery and horror is cleared away from it, the happier for the unfortunate sufferers." (Combe, 1850, p. 376)

This was written in 1840, by Andrew Combe, an Edinburgh man. He had a powerful brain theory (phrenology) which has now been replaced by more complex brain theories. His exhortations fell on deaf ears nearly 150 years ago. If we try to sell what Professor Eisenberg has called 'mindless' psychiatry to the public, we do both them and ourselves a disservice. It is all more complicated than that; even though it is equally risky to leave out the brain altogether. But it shuts the door to all sorts of forms of treatment which are important and effective. We should, in my view, abandon the approach of promoting psychiatry as a special form of physical illness. Indeed, on that particular point we would be much better employed in teaching those that practice 'physical' medicine and surgery to behave more like psychiatrists.

My second point is that we seem to be increasingly a success-orientated society. Efficiency and productivity are at a high premium, and the less efficient and productive are of correspondingly lower estimation. They may be seen as failures, or lazy, or deviant in some way which makes them 'unnecessarily dependent'. Because many people are now better off, those that are not must be just not trying hard enough, or are feckless or dishonest, or both. We can certainly become quite punitive to deviants, as witnessed for instance by the disgraceful state of many of our prisons, where three or more men may have to share their single cell with their own excreta. We have also become Scrooge-like with our official benefit system, as witnessed by the social loan system of benefit, and the failure to support young people who have left home, driving them to live and sleep on the streets. We also have a poor record in employing the disabled. Indeed, our quota system for disabled employment is to be dismantled, because it does not appear to be working, but nothing else is being proposed in its place apart from exhortation. Cheap housing for rent is becoming increasingly scarce, as a result of current policies. In our society, the weakest are either going to the wall, or at least being sent off in that direction.

My third concern is the pollution, or debasement, of language. George Orwell's classic essay "Politics and the English Language" (1945) should be on every citizen's reading list – and certainly on the list for anybody working in the health service. Language will, of course, continually change and evolve, but I am referring to the increasing habit of avoiding any arguments by simply making statements and assertions for which there is no foundation. The trick is to continue until the opposition caves in, perhaps from exhaustion. This is the stock in trade of the mountebank and of the advertising and marketing world, and this was the procedure used in writing and launching the White Paper, *Working for Patients* (Department of Health, 1989*b*). This is written like a brochure; lacking any detailed specifications or reasoned arguments. It was, I believe, a grievous and disgraceful offence to the intelligence of all professionals, and especially of managers, working in the NHS.

I have referred elsewhere to the author of this obfuscating optimism as 'Dr Pangloss', as opposed to the erudite, thoughtful Dr Acheson – the Chief Medical Officer – who has managed to insert some good ideas into the White Paper, especially the instructions to health districts to assess and meet the needs of their local populations and put some control on the activities of providers. Just at present Dr Pangloss is giving more instructions to managers than to doctors. For instance, health authorities must arrange for every new attender at a hospital to be plugged into the correct contract programme, for billing to the right purchaser – a state of affairs which seems a very long way off, as is the ability to cost a particular treatment.

I feel very sorry for managers, and am not at all surprised that they have resorted to rather poetic metaphors to support them in their existential crises – running with all sorts of balls, in every conceivable direction, over all sorts of playing fields, of every conceivable gradient – and at the same time trying to keep them all in the frame. I was, however, disagreeably surprised to find at a recent meeting of very enlightened managers (enlightened because they were attending a meeting at the Royal College of Psychiatrists), that their ideas of 'outcome' measurement, referring to patient care, included only measures of clinical improvement. The concept of preventing deterioration and maintaining people to function at their current level, or organising a pain-free and dignified death, did not seem to be on their list of 'outcomes'. Such concepts are foreign to the upbeat phrases with which Pangloss-speak is irredeemably polluted.

These three processes: the devaluing of the mentally ill, the rejection of the unsuccessful, and the pollution and debasement of language, relate to experiences in Nazi Germany, for the following reason. The cost of health care will continue to rise, as will the number of people living beyond the age of 75. The pool of people of working age, in Great Britain, and many other countries, will fall, or at best be static. At some point, hard choices will have to be made. Criteria such as 'value for money', or 'quality of life' may well be used. The quality-adjusted life year (QALY) has been developed, but how does one apply QALYs, to a serious mentally handicapped and physically disabled person, who may also be deaf or mute, requiring continued expensive care, or to the large numbers of people suffering from Alzheimer's disease and to their carers, both at home or in hospital? Many people suffering from schizophrenia, or severe depression, lead restricted and painful lives – as do their families. The cheerful world of Dr Pangloss seems far removed from this existence. We are in the world of real news rather than television advertisements. Instead of the reassuring jingle, we are hearing what Wordsworth has called "The still sad music of humanity". Perhaps Dr Pangloss will want to switch it off.

Writers on QALYs have referred to this situation; for instance:

> "The essence of a QALY is that it takes a year of healthy life expectancy to be worth 1, but regards a year of unhealthy life expectancy as worth less than 1. Its precise value is lower the worse the quality of life of the unhealthy person (which is what the 'quality adjusted' bit is all about). If being dead is worth zero, it is, in principle, possible for a QALY to be negative, i.e. for the quality of someone's life to be judged as worse than being dead." (Williams, 1985)

In a recent article on euthanasia in the highly respected *New England Journal of Medicine*, two eminent physicians, one American and one Canadian, have discussed the increasing interest in and practice of euthanasia (Singer & Siegler, 1990). One of the risks, they believe, of allowing euthanasia is what they call 'discriminatory' euthanasia:

> "Patients belonging to vulnerable groups in American society might be subtly coerced into 'requesting' euthanasia. In the United States today, many groups are disempowered, disenfranchised, or otherwise vulnerable: the poor, the elderly, the disabled, members of racial minorities, the physically handicapped, the mentally impaired, alcoholics, drug addicts, and patients with the acquired immunodeficiency syndrome. In a society in which discrimination is common and many citizens do not have access even to basic health care, the legislation of euthanasia would create another powerful tool with which to discriminate against groups whose 'consent' is already susceptible to coercion and whose rights are already in jeopardy."

This is an abyss into which no one wants to look and I do not think for a moment that Dr Pangloss would be advocating 'merciful death' (the term used by the Nazis), along the lines hinted at by the authors of this article. He may be more inclined to take a hint from another American, Dorothy Parker, "No problem is so big that it cannot be avoided". But as a health service becomes overwhelmed, some sort of selective triage might start to operate. And the medical apparatus is not free of moral judgements, as witness the disapproval and anger created by people who take overdoses, or even have terminations of pregnancy, and other groups who have "brought the trouble on themselves".

There are very serious choices to be made for the future, in which citizens must be involved as it will affect their lives as well as their health care. For instance, in Britain we tolerate some 4000 deaths a year on the roads – the equivalent of the Lockerbie air disaster every month – and many more serious injuries, making major demands on the health service, as well as causing great suffering. But we have not introduced random breath tests, nor slower speed limits, and indeed at present are encouraging road transport at the expense of rail. By far the most damaging drugs affecting our health, which put huge demands on the health services, are alcohol and tobacco. At least a third of all hospital attendances are either alcohol- or tobacco-related. But pricing policies on both these drugs, which would reduce consumption, remain feeble in the extreme. All these situations – as well as the introduction of extra taxation to provide more funding for the NHS – could be changed or brought about by political action, but our elected representatives believe that their constituents would not tolerate it. Will they feel differently when the stark choices of care, and who should receive care, become more urgent and painful? These choices transcend party politics, but the prospect of having to make them is real enough. The threat to some of our weakest and most defenceless citizens is, I would say, far greater and more urgent than any threat of a nuclear war or of approaching inundation by global warming. It needs to be recognised, so that it can be avoided.

Satisfactory psychiatric services can only be achieved by a joint enterprise between psychiatrists and other professionals on the one hand, and the citizens on the other.

To ensure success, psychiatrists need to be in the market place and I would hope that this will be more like the Greek *agora*, which contained market, politics and philosophy, than 'the market' of currency dealing or pure economics – not that economics is ever pure. Psychiatrists need to exchange ideas with all sorts of people and be prepared to argue their own particular views – which are, I am glad to say, by no means uniform. We need to raise the level of discourse to something more sophisticated than what often passes at present. For instance, we need to get away from psychiatrists being seen as peddlers of pills with some electricity to back them up – the so-called 'medical model', and advocates being regarded suspiciously by psychiatrists as 'all Citroens and sandals'. Equally we must be careful that our own contributions are sensible and properly supported by evidence. Sometimes psychiatrists seem to occupy either an omnipotent stance or an impotent one, with nothing much in between. A more important difficulty is our natural sensitivity to what we feel to be unjust criticism or to wilful misunderstanding or misrepresentation. Nevertheless, the cure or treatment of agoraphobia is exposure *in vivo*, and we have to go through with it.

We can take heart that we have many friends and allies 'out there', and that it is possible to make the middle course an interesting one – one of the many achievements of Professor Anthony Clare. We must remember that the Press needs good-quality information and treat their sources with respect, if only for their own sakes, to preserve them for future occasions. This whole approach involves a certain combination of confidence and modesty. Above all we must not employ Dr Pangloss to package our message into a few small short slogans or a mass of soothing verbiage.

Secondly, we need citizens to help us actively in our enterprise, and by citizens I mean both other professionals as well as so-called 'laymen'. Our relationship with other professionals is full of interesting pitfalls. There will, of course, be 'turf wars' and arguments, but in principle I hope we will follow the pattern of modern football where the general purpose is abundantly clear and there is a good deal of overlap as to who does what and where, and we cover for each other. There is so much work to be done in our field that nobody is going to be cut out.

In addition, we must make the best possible use of the immense fund of goodwill and voluntary action that exists for psychiatric work of all sorts. My own personal experience with the Samaritans Organisation, for instance, has given me great respect for what can be done by people who would be called 'non-professionals' but in fact have careful training and direction. In all this we must not forget that we learn most from our own patients and must listen to their views about what they see as important for their care.

Thirdly, we must, as psychiatrists, make sure that we are properly trained and remain so. We will be expected to take a lead. People will want us to do so and indeed we must do so. In particular, we must be sure that we remain well informed and do not get stuck at the level at which we first emerged from our training. Training needs to be seen as a lifetime experience.

The value of psychiatrists has been abundantly recognised by the high demand for them at present, and by the response of the Department of Health's Joint Planning Advisory Committee in creating a considerable number of new senior registrar posts. We carry a further advantage. We do not, as a rule, bring in our wake a large train of expensive equipment or staff, such as pathologists, anaesthetists or X-ray machines. Some of our finest exemplars, such as Professor Michael Rutter, FRS, and Professor George Brown, a Member of the British Academy, have all done their major work by using interviews, the basic equipment of the psychiatrist. Like Turner's palette, this looks pretty ordinary, but the high technology is in our heads, in our mental equipment. That is where it must remain and we must be sure that any built-in obsolescence is minimised. Psychiatry remains, proudly, a clinical and social science. As its practitioners, we are mobile and can go out to meet our citizens wherever they may be – in palaces or in packing cases, in prisons or in pebble-dash suburbia. We must take advantage of this freedom and we must earn our right to exercise it.

In addition, we must maintain our political freedom. At this point it is often the custom to quote "The price of freedom is eternal vigilance", but this is a Panglossian corruption. Freedom cannot be bought. The original statement by John Curran, a well known Dublin Liberal lawyer, was made 200 years ago. "The condition upon which God hath given liberty to man is eternal vigilance; which condition if he break, servitude is at once the consequences of his crime, and the punishment of his guilt." This applies as much to our clinical freedom as to our political freedom. We have to remain vigilant, both as psychiatrists and as citizens.

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Lecture

The Holocaust and German Psychiatry

JOHANNES MEYER-LINDENBERG

The Holocaust under the Nazi regime is probably the most traumatic catastrophe of our century and even of history in the civilised world. Its deepest abyss consumed the lives of one-third of the world's Jewish population, who were selected and murdered in a cold-blooded industrialised machinery of death in this their 'Shoa'. The Jewish people represent the victims of the Holocaust more than any other group of human beings who suffered this iniquity. The Holocaust has left in its wake few survivors, and many invalids in body and in mind, who remain compelled to live with a trauma that surpasses any other deliberately caused by fellow humans: and it has left in its wake an entire nation in shame and bewilderment, stigmatised and traumatised by the horrifying crimes that were committed in its name, faced with the task of analysing what happened, so that it may never be repeated, forbidden by the enormity of the horrors from repressing the past, and obliged to integrate deeds that cannot be undone.

The vast majority of Holocaust victims were Jews; but many other groups were segregated from society and sent to death or mutilated, tortured, deprived of their human rights because they did not conform to the Nazi ideals of 'desirable members' of their hypothetical race. The first victim group of the Nazi extermination policy was that of the chronically mentally ill and disabled. How were German psychiatrists involved in these crimes? Did they not even try to prevent them? How has the Holocaust affected German psychiatry? These questions necessarily interest German psychiatrists, and are the subject of this paper.

Karl Jaspers had already said in 1945: "We need a knowledge of history, of its facts and meaning, in order to see through our moral political position". Since the end of the war, the process of bringing the facts to light has been continuous, and the evaluation of the data for the past ten years has received wide publicity in the so-called *Historikerstreit*, that is, the public debate among historians. This general discussion among experts, the uncensured inquiry into the moral impact and historical location of National Socialism and the ensuing crimes have been followed with intense interest in Germany. As to psychiatry, there have recently been many publications, some by authors outside the medical field, in both parts of Germany, and abroad. We hope gradually to learn and understand what happened.

German psychiatry was involved in the Nazi extermination programme. An estimated 100 000 mentally ill or disabled patients were murdered under the Nazi regime. Only one-fifth of all psychiatric in-patients of the time survived. Half a century later, we still ask how psychiatrists could have become an instrument of such inhumane domination, so far removed from all moral and ethical principles, as members of a nation that brought forth philosophers who verbalised these very principles. Recent publications have offered various theories. Robert Jay Lifton in his book *The Nazi Doctors* (1986), in the chapter on the 'Psychology of genocide' focuses on what he calls "the psychological pattern of doubling", by which he means "the division of the self into two functioning wholes, so that the part self acts as an entire self". Hans Walter Schmuhl (1987) has offered what he calls the 'theory of polycracy', that is, the accumulative effect of autonomous centres of power in Nazi bureaucracy, to explain the radicalisation in which the murders were euphemistically called 'euthanasia'. Orders came from various ministries, and laws were passed to reinforce as right what normal human conscience considered wrong, pressing doctors into compliance.

The first law was the 'Erb-Gesundheitsgesetz', that is, the law concerning hereditary health, passed in 1933, the first year of Nazi rule. It was declared necessary for the "protection of the race" and became the basis for forced sterilisation, which began in 1936. The unqualified term 'unworthiness' was first applied to the incurably mentally ill and disabled, and later to all members of society who were considered undesirable by racial criteria. This law was not the first manifestation of racial Darwinism in human society. In Sparta, ill-born or deformed offspring were thrown down a chasm below Mount Taygetus – I quote Plutarch, 'Life of Lycurgus', Chapter 16 – "out of the conviction that the life of that which nature had not well equipped at the very beginning for health and strength, was

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This lecture was given by the late Professor Meyer-Lindenberg in the "International Scholars Lecture Series" on 16 May 1990, at the 143rd Annual Meeting of the American Psychiatric Association, New York.

of no advantage either to itself or the state". Long before National Socialism, various ideological backgrounds in Europe and Asia gave rise to ideas of selection. The names of Plato, Darwin and Nietzsche carry associations of this kind, to name but a few. Friedrich Nietzsche, whose work had a fateful influence, called for "the extermination of millions of failures". Following World War I, and particularly during the subsequent economic crisis, the call for 'racial hygiene' was heard in the Weimar Republic, and the attitude towards psychiatric patients became increasingly hostile, so that from the beginning of the Nazi regime there was an element of political and social thought which condoned the segregation of psychiatric patients. The monstrous apparatus of National Socialist jurisdiction, its terror-infested bureaucracy, supported this 'solution' to a social problem. Human beings were suddenly judged by what was considered the most economic aspect for the society to which they belonged. Individuals were deprived of their innate right to life, and progeneration became a process of manipulated breeding. The culmination of utilitarian and pseudoscientific thinking under the auspices of perverted humanity ultimately led to industrialised mass murder. Since the hideous phrase "life unworthy of life" was never clearly defined, it was soon extended to encompass *any* social group which was considered undesirable by Nazi racial doctrine.

Few Germans had the courage to speak out against the narrowing of intellect to the dimensions of Nazi ideology as openly as did the poet Ricarda Huch in 1933, when she objected to the expulsion of Jewish members from the Prussian Academy of Arts and Science and wrote: "the national way of thinking which the present government prescribes is not *my* idea of being a German. I consider the centralization, the force, the brutal methods, the defamation of people of different mind, the bragging and self-praise to be *un*-German and disastrous".

Mass sterilisation of psychiatric patients marked the beginning of the Holocaust. Card registers were made, a whole gigantic system of observation and discrimination registering hereditary factors that threatened the weakest members of the community. How were medical doctors induced to comply with the hereditary-health law, thereby violating their ethical codes? During the first two years of the Nazi regime, 1200 university professors were removed from office, 412 of them from medical faculties; 61 of these were professors of neuropsychiatry. In 1934, Rudolf Hess set up a university commission to examine the political 'reliability' of professors, many of whom were sent to camps for indoctrination courses. A much larger number of doctors, all of Jewish extraction, was driven from the country before 1938. By a decree dated April 1933, Jewish doctors were denied the right to private practice, and in 1938 they were stripped of their approbation as medical doctors. Of the doctors who emigrated during these years 10.7% were neuropsychiatrists. By 1939, one-third of the remaining doctors in Germany were alleged to be 'reliable members' of the National Socialist Party. Important medical posts in universities and bureaucratic institutions were reserved for these so-called reliable doctors. Presidencies of medical and scientific associations were also manipulated.

Systematically, political directives infiltrated the medical sphere, hospitals and research. From 1936 to 1939, psychiatrists were expected to see to the sterilisation of their patients for the sake of so-called racial hygiene, rather than to minister to their individual treatment and improvement. The perfidiousness of Nazi ideology, supported by unscrupulous scientists, and the absurd biologism of the time, soon produced the hypothesis that the human mind, its mechanisms and contents are determined genetically. On this basis, it was possible to stretch the classification of "unworthy of life" from bearers of incurable hereditary diseases or what was declared to be such, to encompass all groups whose minds did not conform to the horrific political and racial goals of Nazism. In this way, such heterogeneous groups as Jews, capitalists, democrats, liberals, communists, social democrats, gypsies and members of the Slavic people could all be discriminated against under the same heading as being a genetic threat to the hypothetical Nordic-Teutonic race, and therefore enemies of the Germans. We are all painfully aware of the subsequent consequences of this perversion of pseudobiological reasoning.

From 1936 to 1939, psychiatric patients were systematically submitted to forced sterilisation, regardless of age. The youngest reported victim was a two-year-old girl. On 2 September 1939 this was stopped, and Hitler issued an order, in his own handwriting, on his personal writing paper, saying the two addressees were to be responsible for authorising doctors, whom they were to specify by name, to extend their competence in such a way that patients who were to human knowledge incurably ill, after a very critical appraisal of their state of illness, were to be granted a merciful death. It was no accident that the date of this order coincided with the beginning of World War II; in fact Hitler appears to have deliberately backdated it in October to cover the murder of over 2000 Polish patients on 29 September 1939. He had allegedly always intended to begin with the "elimination of life unworthy of life" with the onset of the war, when public attention would be diverted, and economic reasons could serve as an additional excuse. This order marked the beginning of the organised mass murder not only of the incurably ill, but of all the groups within society who had been branded as 'undesirable'. Hitler carefully avoided trying to pass a law to this effect, and yet his mere personal order was obeyed. From February 1939 onwards, this plan had been in the making. A board of professors of neuropsychiatry was consulted, and pharmacologists decided that carbon monoxide should be used for killing, as the doctors refused to give lethal injections or medicines.

Following Hitler's order in September, a staff of doctors chosen from various fields of medicine secretly organised the death machinery, equipping special new centres to which doomed patients were to be taken to their death. In November 1939, the heads of all asylums were ordered to fill in sheets on those patients whom they considered incurably ill. Special transport collected them from the asylums – children and adults, including many old people who were simply frail from old age.

The communities in or near where the death centres were set up were deliberately deluded to believe these institutions were intended for 'special treatment'. The removal of the patients was a state secret for which the directors of the asylums were held personally responsible. Yet there can be no doubt that those who filled in the sheets knew that they were signing a death sentence for every patient declared incurably ill. The majority of psychiatrists involved in this infamous 'euthanasia' did nothing to protect their patients, or try to protest, or stop the action. Generally, the attitude varied between supporting assent, helpless giving in, and indifferent co-operation. However, detailed inquiries into the history of psychiatry during the Third Reich in recent years have revealed the biographies of at least some psychiatrists who resisted the Nazi order, who tried to flaunt the general passivity within the system, and risked or sacrificed their own lives rather than betray their professional ethics. We, the next generation of psychiatrists, should uphold their memory. These few are figures for identification for German psychiatrists faced with the task of finding a link in the history of psychiatry during the Nazi years with the times before and after these horrifying events.

One psychiatrist whose memory should be honoured was Dr John Karl Friedrich Rittmeister. Born in 1898, he was deeply concerned with humanitarian and social philosophy throughout his life. From 1940 onwards, he was director of the 'polyclinics' in the Berlin Institute for Psychological Research and Psychotherapy. He was an active opponent of National Socialism, and unlike many others he refused to remain neutral. In Switzerland, he was at first fascinated by C. G. Jung's theories, but soon distanced himself because he could not bear Jung's intolerable political and anti-Semitic kowtowing to the Nazis as early as 1933.

Rittmeister's chief aim was to inform people, in order to make them aware of what was happening and think for themselves. He pleaded for a 'new humanism', for the necessity to help 'lonely individuals'. For him, his profession as a psychotherapist was closely linked with his social goals: the mental welfare of the individual was to him the basis for any community. He could not and would not bow to orders such as that given to the universities by the Reich's Minister of Culture (Rust) saying: "do not think of the individual, only think of the nation as a whole". He could not agree with his fellow psychiatrists, who did not contradict when Carl Schneider said during a meeting of the psychiatric association in Heidelberg: "the people must be rid of the social, moral, and economic burden of psychiatric diseases. Therefore, measures must be taken against useless inmates of asylums". For him, psychotherapy had to be based on "the obligatory anthropology of the individual human being"; he considered it not only a science, but also a humanitarian art, and he used this art in helping people survive, beyond his professional sphere. He and his wife hid Jewish citizens in Berlin, and helped many of them to emigrate before the war. He supported politically persecuted men and women wherever he could, giving them food and clothing. He saw his ideals most closely reflected in Marxist and socialist philosophy, and in 1941, Rittmeister joined a left-wing resistance movement called 'Die Rote Kapelle' (The Red Chapel). In it, people from all walks of life and political denominations, including four other doctors, were united in their uncompromising anti-Nazi principles. As co-author of the group's famous leaflets (called AEGIS leaflets after the 3rd-century BC Spartan king who was throttled for giving slaves and citizens their freedom), he openly condemned "the horrible tortures and atrocities" that he was witnessing around him. For this he was arrested, was interrogated for nine months by the Gestapo in various prisons, condemned to death by the *Volksgerichtshof*, and executed by guillotine on 13 May 1943, at the age of 44. To my knowledge, Rittmeister is the only German psychiatrist who lost his life for adhering to his ethical principles.

At a conference of experts in Berlin on 15 August 1940, which discussed the systematic extermination of psychiatric patients, only one psychiatrist (Gottfried Ewald) left in protest and refused to take part in the project; one other refused later (Dr Kuhn from Reichenau). The psychiatric expert from the Rhine

Province, Walter Creutz, had the courage to publish a memorandum against the euthanasia campaign under discussion.

Dr Karsten Jasperson, head of the psychiatric department in Bethel and member of the National Socialist party since 1931, repeatedly refused to comply in "aiding and abetting what according to existing criminal law is plain murder". He wrote a memorandum to Hitler and leading party members protesting against the registration-sheet orders, and having received no answer, in 1940 filed a law suit for murder and assisting in murder, informing fellow psychiatrists in various parts of the country. He raised the alarm to Count von Galen, the Cardinal of Münster, who then held his famous sermon in the Lamberti church on 3 August 1941, in which he openly denounced the murders and called for a law suit against those whom it might concern. von Galen's courageous sermon had an enormous impact. It did in fact put an official stop to the murdering of patients; but we now know that the Nazis continued their infamous action secretly. Following Count von Galen's sermon, the Nazis issued a notorious circular in which they ventured to proclaim that Christianity and National Socialism were incompatible, saying:

> "It is clear that the Christian churches try to keep alive even creatures unworthy of life, those who are totally and incurably mentally ill. But it is equally clear that we National Socialists must see things from a different point of view. . . . To keep them alive is completely against nature, because by nature they are in no way enabled to stay alive on their own."

Dr Jasperson's courageous and repeated attempts to rally a united opposition among psychiatrists against the Nazi murders failed. Only a few university professors supported Jasperson. To my knowledge, they were Boestrom in Leipzig, Behringer in Freiburg, Braun in Rostock, Gottfried Ewald in Göttingen, Karl Kleist in Frankfurt, and Jasperson's old teacher Oswald Bumke in Munich, who publicly denounced the euthanasia programme. However, they were unable to prevail against the powerful psychiatric establishment represented by Carl Schneider in Heidelberg, Kihn in Jena, Heyde in Würzburg, and the Swiss Ernst Rüdin in Munich. Rüdin was responsible for genealogy and demography in the Research Centre for Psychiatry in Munich, and since 1935 was also president of the leading neuropsychiatric societies which were united by order of the ministry in the "Society of German Neurologists and Psychiatrists", a precursor of the present Deutsche Gesellschaft für Psychiatrie und Nervenheilkunde (DGPN). Rüdin personified that fateful collaboration between science and politics which denied the right to life of so many patients. His demonstrative engagement in the racial political aims of the Nazi regime is one of the darkest chapters of our scientific society and German scientific history. (A clear picture of his personal stance regarding all this has not yet been obtained (Plötz *et al*, 1988).) It was Ernst Rüdin who wrote the medical comment to Nazi sterilisation law, saying: "The individual right to physical integrity is subjected to the primacy and authority of the state with regard to life, matrimony, and family". This point of view pulled down the last barrier against the campaign for "exterminating unworthy lives".

Individual doctors (Frau Dr E. Meyer, Professor Willige in Warendorf, Dr Willige in Lindenhaus asylum, Brake) tried to save their patients by deliberately faking the diagnosis, or by lying about patients' fitness to work. Only those who could rely on their staff not to denounce them were successful. They needed the help of others if they were to protect their patients. Even so they were in constant danger of being caught, since 20% of the patients from every institution were potential victims for euthanasia. The director of the Hildesheim asylum, Dr Grimme, as soon as he became aware of the criminal actions in 1941, wrote in indignation and despair about what he had found out, among others again to the Society of German Neurologists and Psychiatrists; like Jasperson, he received no answer. The psychiatric establishment remained silent, as did the law courts.

Among those who opposed the euthanasia programme, I would like to mention H.-G. Creutzfeld, director of the neuropsychiatric clinics in Kiel from 1938 to 1954. He was one of the few *non*-party-members among university psychiatrists of the time, and was dedicated to uncompromising medical ethics. Creutzfeld refused to allow sterilisation of his patients, and later defied Gestapo attempts to take them away to be murdered. He constantly endangered his own life, even defending his patients in courts and courts martial. His wife (daughter of the outspoken national economist and sociologist, the 'red Professor' W. Sombach) was imprisoned for political dissent, and Creutzfeld was isolated and discriminated against by his university colleagues. According to Lifton (1986), his outspokenness – so rare in those days – led people to consider him eccentric if not slightly mad; paradoxically, this stigma probably saved his life. It was Creutzfeld who, after the war, was chiefly responsible for hounding down and bringing to justice Werner Heyde, the Nazi psychiatrist who had lived under the false name of Dr Sawade in Schleswig Holstein and written thousands of expert reports for law courts of the Federal Republic. But important though all these individual refusals, protests and attempts at opposition are, they did not succeed in rallying a united, political opposition of psychiatrists against the systematic euthanasia campaign. The Holocaust of psychiatric patients went on.

The complicity of psychiatric research during these years is evident. Analogous to the racial dogma and so-called racial hygiene, psychiatric heredity was the chief object of research. Science was manipulated by politics, and psychiatric research, with its stubborn blindness to what was happening, shares responsibility for the atrocities. A typical and shocking example is the uncritical use made in the Munich Institute of Psychiatric Science of an ever-increasing number of children's brains from the asylum in Haar near Munich during the war.

A famous speech by the Freiburger pathologist Franz Büchner on the Hippocratic Oath in 1941, and Count von Galen's sermon, both of which openly condemned the murdering of patients, had a great influence on medical students, who formed an opposition group in Munich called "the White Rose". Five student members and their professor were executed in 1943 for circulating courageous statements like the following: "For some months we have been hearing that patients, who are chronically ill and may seem incurable, are being removed by force from psychiatric asylums by order from Berlin. Regularly, the relatives are notified shortly thereafter that the ill person has died, that the corpse has been burned, and that the ashes may be collected".

Towards the end of the war, a Hamburg branch of the White Rose was formed. The Hamburg group was sentenced to prison by the *Volksgerichthof* in 1945. I mention this group because Rudolf Degkwitz, later a professor of psychiatry in Freiburg, and President of the DGPN, was one of its members.

The names and efforts of the psychiatrists I have spoken of have been revealed slowly in the course of the past few years, often researched by authors from outside the psychiatric field, and in the local institutions where they worked. Although they did not succeed in forming a massive opposition which was effective enough to stop the deadly Nazi machinery, we are grateful that they tried, and feel they should be honoured in our memory. There were no instances of such heroic martyrdom as that suffered by the Polish psychiatrist Dr Halina Jankowska in the Warsaw ghetto. She stayed with her patients in hospital during the Warsaw uprising and was killed with them on 23 August 1942. The perfidious Nazi system of removing designated patients from their asylums, from the care and presence of their psychiatrists, and taking them to remote institutions to be murdered by gas, prevented the occurrence of such situations. The Nazi regime appears to have been careful to avoid publicity of any kind regarding its euthanasia campaign, otherwise opposing psychiatrists would surely have been persecuted as relentlessly as any other citizen who voiced dissent. When the Nazis invaded the Netherlands, 82% of Dutch doctors united in opposition to the regime. In Germany, the Nazis had for six years carefully selected conformists for the leading medical positions before they dared to launch the hideous Holocaust on psychiatric patients, thereby forestalling a collective protest and making it possible to quell individual efforts to stop the murders by simply ignoring them. The centralisation of power, together with the doctors' traditional lack of political awareness, enabled the Nazis to carry through their racial policy in psychiatric institutions. The psychiatric Holocaust was the starting point for the unspeakable genocide of the Jews. The methods and the lethal gases were used first on psychiatric patients, then the Jewish '*Shoa*'. The failure of psychiatrists, scientists and medical societies to insist on basic ethics regarding the right of the individual to live, opened the way for the perverted pseudo-scientific policy aimed at breeding a purely Teutonic race.

After the end of the Nazi regime, psychiatrists in the Federal Republic gradually took actions to guard against any repetition of what had happened during the dark years. They found it difficult at first to face the truth when it was revealed in its full enormity. For example, an honorary member of the DGPN, Gerhard Schmidt, was unable in 1947 to publish two papers called "Report following the night of destruction", and "Selection in asylums 1939 to 1945", because Kurt Schneider and Karl Jaspers were reluctant. Karl Jaspers wrote: "There is in me something of an infernal disposition in wishing that these matters be known to the smallest detail, and yet not wanting to be the one responsible for making them known. Thus I cannot encourage this publication". A temporary 'silence' was agreed; Schmidt's work was not published until 1965.

For many years, psychiatrists were involved in the procedures of indemnification for survivors of the Holocaust. The psychic damage suffered by every one of the victims had to be ascertained. Doctors and lawyers alike were confronted with the suffering of tens of thousands of individuals, one by one, as witnesses to the unspeakable suffering of the millions who had been killed anonymously and in masses, far away from public sight. The bureaucracy entailed was very painful to the victims, who often had to encounter the very people who once inflicted their tortures; the grim phrase the "second road to sacrifice" was coined. Christian

Pross (1988), in his book *Recompensation – The Petty War Against the Victims* gives a shocking report. German psychiatrists were called upon to improve this painful procedure and were able to do so to an extent that received acceptance. The process is still going on: the gypsies, many of those who suffered forced sterilisation, and those who were deported for forced labour, have still not all received the symbolic indemnification that money can offer. As a result of all these encounters, there is now a much higher awareness of, and respect for, the problems of minorities. And the experience gained by psychiatrists from the individual analysis of Holocaust victims is bearing fruit in helping immigrant foreign minorities with their problems.

Decentralisation of power and transfer of responsibility to the federal states (*Länder*) were an important step in many fields, including psychiatry, since plurality and diversity are a safeguard against political monopolisation. A series of laws and regulations was aimed at making psychiatry more humane for the patient. The strictest laws are now concerned with the admission to hospital of the mentally ill. Research in medicine which involves patients in any way is subject to a series of restrictions and safety measures against unethical practice, and the general public has finally become a critical observer. Following the students' revolt of 1968 with its call for liberation of the individuals as a basis for a humane society, there was a surge of interest in conditions for psychiatric patients, which were found to be inadequate by modern standards. Since then, asylums with their chronic mental patients have become more integrated. Following the recommendations of an *Enquête* commission and an expert paper, community psychiatry is increasingly practised. There are now more psychiatrists in private practice than ever before, ensuring individual out-patient care. There is still much to be done, but psychiatry is receiving more and more political attention. A Foundation for the Mentally Ill is being inaugurated at the instigation of the DGPN to offer quick, unbureaucratic help where needed, and to serve as a lobby for psychiatric patients' interests, and to support research in relevant areas.

The failure of the majority of German psychiatrists during the Nazi regime to prevent the Holocaust of so many of their patients is a trauma which we are still trying to overcome. The DGPN has formed a special commission to document the history of psychiatry, and of the Society itself, during the Nazi years. We confidently hope to have learnt our lesson, and to be ever aware of signs of abuse in our country and elsewhere. We have seen how vulnerable medical ethics became, when doctors were compliant servants of the state. We must always keep track of political developments, to make sure that the rights and welfare of the individual, particularly of our patients who by the very nature of their illness represent the weakest of all minorities, are never endangered again. We have to take special care of the chronically ill, the addicted, and the elderly psychiatric patients. In their interest, dogmatism should be avoided. With the generous help of our Western friends, the Federal Republic of Germany has become a democracy, and a pluralistic society – not merely in form, but in its heart. The citizens today are critical towards authorities of any kind. The humiliation and shame over the crimes our country committed under the Nazi regime are deeply felt, in both parts of Germany, as the plea for forgiveness from the East German parliament during its first session after the first democratic elections showed. We trust in our ability to prevent a repetition of the past and overcome the difficulties ahead of us. The one thing we know with certainty is that we all abhor our Nazi past, for which the Holocaust is the everlasting and scarring symbol.

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Lecture

The Impact of Political Change in Eastern Europe on Behavioural Sciences and Psychiatry

TOMA TOMOV

Political change in Eastern Europe has its catchwords: democracy, pluralism, human rights. Taken at face value, they seem to convey convincingly that a steady and consistent transition has been set in motion, with a clear purpose in mind: the destructuring of stagnated totalitarian regimes and their replacement with more viable and flexible systems. I do not intend to discuss political change at this macro level, not because it lacks importance or interest, but because the events in question so directly affect my immediate human world and me as an individual that attempting to step out of their stream and judge them impartially is impossible for me.

Instead, I describe the situation from the perspective of my professional life as a teacher and scientist in Sofia, at the time of the recent political upheaval. I also examine the prospects for scientific inquiry that are being opened by the changes in Eastern Europe.

Throughout 1989, I had been planning with my teachers in group and family therapy, Drs George and Vasso Vassiliou, and with their associates from the Athenian Institute of Anthropos, a training programme called Sensitisation to Systemic Thinking (Vassiliou & Vassiliou, 1981). We regarded this programme as an important first step in the introduction of a new epistemology into Bulgarian mental health practice, so we also had to transfer the teaching technology involved. We envisaged two editions of the course in the first year, and more in the second, with a gradual replacement of the 12 Greek trainers by Bulgarians.

I recruited the candidates and formed a balanced group of 30 trainees, of varying ages and professional experience, but all with a background in mental health. Since experiential methods and self-exploration constituted an essential component of the training package, the interviews with the applicants soon acquired a characteristic pattern: I found myself each time undertaking a good deal of catalysing work for the interviewee. The central issue in these interviews was invariably participation, phrased differently as 'spontaneous', 'genuine', 'active' and so on, but always implying that whatever teaching/learning took place in the course it would be the trainee's responsibility to ask for it.

The programme envisaged three intensive training weeks, at monthly intervals and beginning in early December 1989. On 10 November 1989, Todor Zhivkov, the then Communist Party General Secretary and State Council Chairman, was ousted and the streets of Sofia were filled with political activists and rejoicing crowds. No matter how meticulous we were in the planning of our training, we had not been able to foresee these developments.

By mid-February 1990, the first edition of the training programme was completed, and the last of the teaching teams had returned to Greece, eager to study and analyse their notes and experience. I was left with many confused thoughts about the meaning of political change in Bulgaria and the value of what I was doing for a living under these circumstances.

Throughout the three training weeks, I had been watching the expressions of the group members and their behaviour for clues as to the needs for further training. I knew that such needs would explode into awareness, following the sensitisation, and would be addressed to me: so I wanted to be prepared. The trainees would sometimes consider using a 'conservative approach' – one that would typically preserve the existing structures and boundaries. However, as the training progressed, these attempts became few and half-hearted. Just as often, 'radical' patterns for solving problems would be tried out, which, unlike the conservative approaches, would primarily involve the destructuring of existing boundaries and links. With time, these attempts also became few and half-hearted. Apparently, the trainees were developing awareness that staying entangled, which is what the 'conservative' approach leads to, and becoming cut-off, which is what the 'radical' approach brought about, were equally undesirable. To some this was disappointing, to others frightening, and to only very few, it was challenging.

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I can illustrate this with one observation from a discussion with four trainees, from different units of the same health centre. They were trying to work out how they should proceed, on return to their place of work after the training; it was, they said, a very traditional institution. As a first solution, they suggested that everyone at the health centre should be sensitised to systemic thinking (the 'conservative' approach). I replied that selection was an integral part of the training programme, and their colleagues were highly unlikely to all pass it. They proposed arrangements for the four of them to 'work together', seeing patients jointly, with the exclusion of the rest of the staff (the 'radical' approach). I asked if they were suggesting a new intervention programme, implying that they should work out the rationale first, announce it to all others concerned, and have the programme cleared through the hospital committee. On hearing this, they seemed despondent, and it became apparent that before holding the discussion with me, they had seen their future programme not as just another programme, but as the way things should be from this moment on – the correct approach.

While we were discussing these matters in my office, the streets of Sofia were again occupied, this time by people who had travelled from the southern and eastern parts of the country to display their love for the fatherland and to display their concern about the future of the nation to the members of parliament. There were long, heart-felt speeches protesting about a proclamation, released on New Year's Eve, effectively restoring the right to Islamic names, which the totalitarian government had removed several years earlier.

These protesters were arguing that they were not against the restoration of human rights in the country, but the disruption of its unity. The proclamation, they said, highlighted differences between ethnic groups, while they should have been played down. Any country should consolidate the unity of its people, particularly at times of crises, even at the expense of its reputation as a democracy. Otherwise, economic hardships could help escalate unrest. A dividing line, they claimed, was being implanted, in the heart of the nation, by such a short-sighted policy of proclamations, intended to please foreign powers. I had the fantasy, while listening to these claims, that had it been possible for these people to be exposed to a sensitisation-to-sytemic-thinking programme, their patriotic fervour would have cooled down.

Having said this, I think I have prepared the ground now to state my reading of the political situation. I regard the whole process of change – in my country, and the rest of the Eastern European countries – as a result of the interplay of three major political forces. Firstly, there is a group of influential people belonging to reformist factions within what were formerly called the communist parties. These people display: open-mindedness, a feeling of personal responsibility, a strong position within the Communist Party, and high professional and social standing, attained by virtue of competence, dedicated work, and impeccable morale. Their names are not in the headlines and, I believe, never will be. They were quietly working to precipitate an open crisis but prevent bloodshed, long before awareness of dissident thinking. Now that the balance is tilted, however, these people are faced with the pressing demand to step down from the political scene and into oblivion, the stated reason being their undeniable link with the previous regime.

This pressure comes mainly from those who may be described as radicals – people who, thanks to the newly acquired freedom of expression, had realised their personal identity, and needed to exercise it in terms of power. Constituting a younger age group than the reformists, these people had come of age; their whole lives up to then had been lived within the shadow of totalitarian leaders. Their awareness of their deprivation looms large during contact with Western democracies, precipitating bitter attacks, aimed particularly poignantly at the reformists, who during the totalitarian years had managed to preserve some basic human qualities such as autonomous thinking. The more extreme and pushing the attacks of the radicals become, the less concern the reformists seem to show about the process of change itself, and the more involved they become with their personal survival.

This process then began to escalate. It consumed a great deal of energy, and provided respite for the third major political force – the conservatives – to reform and recharge themselves. These people are tolerant of ideas of all kinds, but sensitive to structural changes in society. When such changes are imminent, they consolidate their ranks and close up to oppose them. So long as the convenient structures of their lives are untouched, they go along with any creed. Being the locomotive of development in periods of peace and quiet, these people act as a major obstacle in the way of innovation. They are practical, matter-of-fact, substantive in their touch. They are there to stay, and are phobic about second-order change.

I know of no living Bulgarian who belongs to any of those pure types: each is a mixture of varying proportions of reformism, radicalism, and conservatism. But in any social situation, it only takes a few minutes to discern who is settling into which position. Most social and political talk is centred on a number of related topics. 'Binary logic', or thinking in terms of polarities, is one of them: in social situations, people in Eastern Europe are very prone to black-and-white logic, which is a handicap. A second topic is 'fine distinctions', particularly with respect to inner life: we discuss our ineptness in distinguishing shades of feelings, negative ones in particular, and our tendency to close such issues by denial. A third topic is 'differences' and our approach to them, characterised by an inability to handle these as equally legitimate variants of the truth.

My feelings about this professional, political, and social life experience were of despondency and exasperation, and this was a telling sign that I was at variance with others in the situation. I often got the urge to set the other person right, and under the totalitarian system I could have acted upon this urge, but not any more. Instead, I turned inward and searched there, often getting in touch with something personally important.

This is how I came to discover my maternal grandmother's diaries. She had started keeping a diary in 1948, when she was in her 60s. The first entry describes the events of 24 December 1948, the day she and my grandfather embarked on their trip from Sofia to Detroit, Michigan. That is where her eldest son, a priest, had moved and settled in 1936, as head of the Macedono–Bulgarian East Orthodox Church, at the invitation of the Bulgarian community there.

This was the second major journey in her life. She had undertaken the first in 1903, at the age of 16 when the family fled to Sofia, following the suppression of a popular uprising centred on her native town of Kroushevo in Macedonia, which had remained a province of the Turkish Empire, unlike most of Bulgaria, Greece, and Yugoslavia. No return had been planned in either journey: in 1948, my grandmother had been bidding farewell for good to her three other children and their families in Sofia. Four years had passed since the end of World War II and the ousting of the pro-fascist government in Sofia. Her two younger sons had come out of prison (having been sentenced to life imprisonment for anti-Nazi insurgency), and she believed they were now well established for life. She felt she could enjoy her old age with her oldest son and his family in America.

In 1950, however, my grandmother travelled back to Sofia, summoned by bad news about her second son. He had again become a political prisoner, this time of the pro-Stalinist regime. Back in Sofia, she managed to trace his whereabouts and kept him alive, through food parcels and warm clothes which were passed through an underground channel.

My grandmother's parting with Bulgaria in December 1948 was a profound change. She was not just abandoning a familiar environment for a totally unknown one; she was also abdicating her one recognised social role – that of traditional mother. My grandparents had long ago drifted apart emotionally, and outside the extended family context, my grandmother was facing the stress of meaningless living. At the age of 50, she harboured an amazingly rich life experience, and this makes me think that she must have been aware of the risk involved in the step she and her husband were taking. Nevertheless, she did not hesitate, I feel, because she had some hope that a fresh beginning would be forthcoming between her and my grandfather. Whatever illusions she might have had about the late stages of her marriage, she lost on board the *Queen Mary*.

Judging from the diary, on the third day out, she developed sea-sickness and remained in bed for several days. My grandfather, as usual, failed to respond with concern, but total strangers did so, and effectively provided care and attention.

This experience received special attention in her diary; in fact, it triggered the idea of the diary-keeping itself. It had shattered a basic tenet in her world view – the dictum that aliens are inimical. The survival strategies of Christians during centuries of Turkish domination in the Balkans had depended heavily on passing this belief down from generation to generation.

My grandmother had to work hard to come to terms with her new experience. With no one on board speaking any of her three languages (Bulgarian, Turkish, and Tsintsar, which is a form of Rumanian) or capable even remotely of empathising with the perturbations in both her past and present life that were precipitated by political and cultural change, she started the diary. This reinforced her identity and anchored it in the past she had left behind – an indispensable first step that enabled her to respond to the challenge of the world that was opening up. This was a creative experience, cast into probably the only kind of creative performance that her education and talents would allow under the circumstances. The full meaning of her actions evaded me: I knew there was something else, much more important than her personal emotional need, that had compelled her to persist for years in a trying and demanding undertaking. She had written with a steel nib on a penholder and an ink-pot; she had repeatedly stumbled over problems with spelling (Bulgarian is not a phonetic language), punctuation, and capital letters, which was only natural with a total of just three years of schooling, and yet she had managed to fill almost a thousand pages with cramped handwriting.

I read my grandmother's diaries avidly. This investment of time caused me to neglect tasks that had always been my number-one priority, such as the revision of an article submitted to a prestigious journal. There was a clear message to me in what she had written, which made me try desperately to work out how my situation paralleled hers. I was not emigrating or even moving house, planning to take a new job, or considering even remotely a personal life change.

And then, very gradually, it began to dawn on me that I had altogether misconceived the process of change set in motion in Eastern Europe as a purely political matter. It was much more than just politics. In fact, the traditional group-centred culture to which I belonged was beginning, slowly and painfully, to consider shifting in the direction of a value system that would recognise individual freedom (rather than the survival of the group) as the ethical imperative that guided viable human societies in the present day. For lack of first-hand prior experience with such values, I had not been able to grasp what had really been happening. It was true enough that my friends and I had cherished individual freedom for years, and had in fact taught it. And yet, only now had the time come to do the work on one's own person that this shift in values implied and demanded.

Of this work, people had been negligent for decades. Eastern Europe had mimicked the industrial, individual-centred societies in every aspect, except for the one which pertained to the essentials of society and which was therefore vital – 'human material'. In almost no time, Bulgaria had attained the hustle of big city life and the accompanying environmental problems; had transformed its agriculture to resemble big-scale farming in appearance, though not in output or attitudes; had invested heavily in universal education to achieve record-breaking numbers of graduates, who never had the chance to express their personal needs and preferences regarding their training; and had institutionalised science with the help of five-year planning schemes which provided for the trimming of outgrowths and for the ostracising of mavericks thus rendering the discipline barren.

While enthusiastically improving the facade of their part of the world, by substituting one brand of socialism for another, the East European countries were at the same time stagnating human growth and development. They were changing in order to prevent change – indulging in change on the scale of tangibles in order to avoid it on the scale of intangibles – for the very human reason that the latter was frightening, as my grandmother's diary and my own experience over the past few months could testify.

Having grasped this, I could account for my despondency and exasperation. The agonising worry about running after the events, and having to make up for time lost in procrastination, eased. The urge to rush into action and put things and people right began to fade away. Instead, getting in touch with my feelings and exploring how they came to be gradually became my preferred response in every social situation. Going over events from the weeks of crisis in my memory became pleasurable, because I could now see logic in what had been, at the time, intuitive choices. For example, having brought forward the issue of participation and used it as a criterion for selection of trainees became a positive act. Having passed no judgements against staying entangled or becoming cut-off from your in-group was positive. Having not influenced the decision of the people from the health centre as to how to proceed with the innovation of their work was positive. Having felt bad about the demonstrators who spoke in defence of the nation's unity at the expense of individual freedom was positive. Having not answered back directly, but dreamt instead of exposing them to new experience was also positive (Bateson, 1972; Maturana & Varela, 1988).

This experience epitomises my thinking of creativity as inherent in adaptive functioning, wherein adaptation is achieved alongside individual freedom, and not at the expense of it. So far as scientific inquiry is concerned, I believe that creative experience is a deeply personal fact, which one neither plans for nor guarantees. As life unfolds, some circumstances are conducive to it, and some not. There are, however, moments in history when cultures undergo shifts in values, and when social issues unexpectedly acquire experiential significance for millions, precipitating creative choices for many. In the case of certain individuals, self-actualisation through adaptive function can resonate at such times with community needs to produce political leaders and their doctrines, artists and their masterpieces, and scientists and their discoveries.

In other words, the days we have been living through in Eastern Europe are opportune for creative experience – the intrinsic condition for true scientific endeavour. Its role tended to be underestimated or altogether disregarded in my part of the world, and for some years to come this will still be the case. However, for a creative experience to find expression in a creative performance which has scientific relevance, a host of other extrinsic conditions need to be present. These will now be discussed under the topics of paradigm, language, and method.

For a creative performance to be validated as scientifically meaningful by the international scientific community, it needs to be termed in the acceptable paradigm at the time of delivery, or it risks remaining unnoticed. For many decades, scientific paradigms in Eastern Europe have been prevented from forming and evolving spontaneously, as the natural drift of scientific quest dictated.

In behavioural sciences and psychiatry, the Stalinist variety of dialectic materialism was translated into linear causative models which implied Newtonian reversibility, repeatability, and predictability. These were consistent with the *a priori* view of the existence of a one and only objective truth, with 'objective' taken to mean 'independent of the observer'. The result was research for the sake of it because with this attitude of mind, all answers that research could provide were known in advance: the actual results could not be predicted, of course, but their interpretation and the conclusions reached certainly could. Thus, no finding could ever be surprising, because nobody asked uneasy questions.

The scientific establishment in Eastern Europe gradually stopped asking curious questions and putting forward risky propositions. Research became tedious and monotonous but also a prestigious, safe, and well-paid way of life. As happens with paying trades, it soon began to be run like a family business, and to avoid harmful bickering, spheres of control were negotiated between the clans. The most damaging aspect of this development was that it tended to reinforce the entrenchment of the thinking of the behavioural scientists into patterns that were depleted of innovative potential. Having barricaded off their territory for survival reasons they ended up entrapped in it, and deprived of experience with the wide world that might have fed novel ideas into their work.

It will take considerable effort, time, and guidance for a paradigm shift to come about in the behavioural sciences in Eastern Europe. In Bulgaria, the process had recently started and has already met with serious obstacles, most of them being unrealistic expectations of the scope of the required change and its timing. Many would tend to see such change as either a complete denunciation of previous practices and infrastructures, or in opposite terms, as their total preservation under different labels. Both patterns – the 'radical' and the 'conservative' – are familiar to me from the way my students acted in problem-solving tasks, and I know that neither works, at least not with mental and family health. The chances for wholesale approaches to work are diminishing rapidly, as Eastern Europe moves away from a traditional group-centred culture; these approaches are the hallmark of change taking place in rigid systems with impermeable boundaries. Flexible systems change by opening up, having first secured their identity.

Dropping a familiar framework of thinking and picking up a different one implies that one regards language primarily as a means of communication, and not as a token of identity. This applies to natural languages as well as technical and scientific ones. Of course, language is always both of these things, but for historical and cultural reasons in the Balkans and, I believe, in most of Eastern and Central Europe, the emphasis has been on the role of language as an agent for the reinforcement and consolidation of identity. Totalitarian methods can suppress dearly guarded patterns sometimes for very long periods, but cannot uproot or modify them. Economic hardships revive nationalistic passions, and language then readily becomes a territory for their enactment. A typical example of miscalculated and shortsighted policy in this field was the abolition of the use of Turkish in Bulgarian schools, which immediately led to Bulgarian being 'abolished' in the families of children of Turkish descent. Thus, thousands of children could not access much-needed knowledge at critical periods of their lives, as they were prevented from learning Bulgarian by their parents and it was not available to them in any other language.

I feel that people imbibe beliefs as to the basic function of language through acquiring the natural language of their culture, and they tend to carry such beliefs over to the specialised languages they come upon later, driven by professional needs and interests. It should not be surprising, therefore, if a research worker coming from the Balkans or Eastern Europe would only adopt scientific language developed by others when enabled to experience it as instrumental in his identity. For the past few decades, most of the behavioural scientists in Eastern Europe have unfortunately been prevented from gaining first-hand 'languaging' experience within the West. Most of their knowledge of the professional developments in that part of the world has come from books, articles, and other written texts. Under such conditions, one can easily mistake the unfamiliar wording of universally valid ideas for genuinely esoteric ideas. The few who have had the opportunity to learn from the source have had no problems in tracing the notions acquired from the schools of Western thought to experience gained from life in the East. They have had problems, though, in conveying the intended meaning of these notions to their colleagues, on their return. Such problems are bound to become less, though, as the shift to an individual-centred culture gains momentum.

In addition to paradigm and language, the prospects for adequate scientific achievement are contingent on method and technique. The obvious problems such as under-funding, poor equipment, and low-quality technical staff will not be described here, because overcoming them is a matter of investment and of training in technical skills. But methodology from the point of view of how it relates to the research worker as an individual needs to be discussed, in order to reiterate the claim that science is a very personal affair: My proposition is that in behavioural sciences and psychiatric research, investing in one's own emotional growth is just as important as investing in developing one's own cognitive skills, and might yield unforeseen returns. One reason I think this is so is that introspection has always provided clues to discoveries in our field, and I do not see a reason why this should change in future.

I have never been able to make this proposition sound convincing enough to be heard and appreciated at home. It is a breach of propriety in academic circles there to attend to, or even announce in public, one's emotional needs. I do not know whether this has more to do with the group-centredness of our culture or with totalitarianism. What I do know is that this norm has prevented scores of well-meaning and gifted colleagues from realising their potentials in meaningful, socially relevant achievements. It is this norm that had rushed them precipitously into contributing to the advancement of world science, national prestige, and the socialist society, while their unattended emotional needs compelled them to adopt power methods in their endeavours, i.e. methods which frame change as an accomplishment outside the research worker in the world. Thus, the failure of their efforts had been inevitable – in fact, collapse had been preprogrammed at the time of inception of the whole exercise.

Within systems governed by the norm of power methods, reaching in is risky, yet breaking out of parochialism compels you to do it. Those who can stay in touch with their roots and still change can make it. Political change in Eastern Europe favours them at a rapidly increasing rate.

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Lecture

The Human Brain and Political Behaviour

HUGH FREEMAN

"I think you ought to leave your head to the College of Surgeons to ascertain what wonderful impressionable substance it contains instead of brains" (G. B. Shaw to a correspondent, 1926).

Since the brain is the organ of the mind, then from the psychological standpoint, our brains are the substrates of what we are. Therefore, to understand the working of human societies, including their politics, both social scientists and scholars of the humanities would do well to comprehend the basic structure and functions of the central nervous system. In fact, partly due to the "tangled and controversial status of the existing scholarly literature" (Greenstein, 1972), most political scientists are reluctant to deal explicitly with psychological matters. Yet any factor influencing the brain – and thus the mind – of a political leader can have a profound effect on that person's actions in the public arena, just as the responses of people in the mass to politically significant events will be governed at one level by biological nervous structures, as well as (at others) by psychological, social, and cultural processes. The higher levels of the brain construct a mental picture that parallels the world but cannot reproduce it without some distortion. This process itself must have potential implications for political behaviour, as must issues such as the ability of the brain to adapt, its similarities to a computer, and the extent to which it might be affected by genetic engineering and other currently developing techniques. The contribution that could be made by the psychological sciences to understanding these critical questions will be considered here under four main headings.

Structure and function of the brain

The computer model

The resemblance of thought processes to computer programs has been useful in directing new scientific interest to the investigation of cognition, although it remains uncertain whether this should primarily aim to make predictions, or provide explanations of how such processes could take place (Johnson-Laird, 1988). However, the human brain contains many more parts, with more complex inter-connections between them, than any existing machine. Bigger brains – and the human brain is relatively the largest in the animal kingdom – can generate larger data control programmes, perhaps corresponding to aspects of intelligence. Yet in the case of mathematics, Penrose (1989) maintains that there are phenomena which are intelligible to human mathematicians who rely on 'insight', but which are not computable. Therefore, a theory which brought mind and consciousness within the realm of empirical science would need to encompass aspects such as insight and unpredicted 'flashes' of inspiration. Referring to quantum theory, Penrose sees the action of conscious thinking as concerned with the resolving of alternatives that had been co-existing as possibilities.

The brain is said to work analogically, rather than digitally, since it is weak at such digital operations as arithmetical problems, which can easily be done by pocket calculators, but very good at pattern-making and learning – not easily explained by digital theory (Gregory, 1987). Much like the brain, a programmed computer is a subjective system, liable to error; it functions through a view of the world which is necessarily idiosyncratic, because of the nature of the programming. The brain analyses data at many levels, but remains dominated by unified subjective experience, whilst the mind depends on the brain in the same way that the execution of a programme of symbolic instructions depends on a computer. Although, broadly speaking, the brain may be regarded as a form of very hybrid computer – albeit one which contains many more interconnected elements than those of any man-made machine – much present-day thinking about brain functions may have become too fixed in a framework of analogies from computer technology and information theory. "Unlike a computer, the brain is highly fallible when it comes to storing voluminous amounts of information, but it is without parallel in grasping the total meaning of the information with which it is presented" (Campbell, 1982). If a mind could be down-loaded into a computer (Moravec, 1988), then theoretically, it could become immortal – which poses interesting theological and political questions. For instance, it would then be difficult to say where the consciousness actually resided, and this 'mind'

Based on a lecture given at the London School of Economics in February, 1989 could be reproduced and stored indefinitely. Such a process, however, is far beyond the capacity of any machines conceivable at present.

However, neural networking – a branch of artificial intelligence – does seem to offer the possibility of modelling complex cerebral processes, which might be of great value in psychiatric diagnosis and perhaps eventually in treatment (McDonald & McDonald, 1991).

Input of data

There is experimental evidence (some still only at the animal level) that the development of brain functioning in the individual depends on the volume of data received. From the time of an individual's conception, the brain is subject to influences which may alter his/her thinking, personality, and behaviour. Among these are the levels of stimulation and the speed and volumes of information received at different periods, for which there may well be an optimal level to promote maximal effectiveness of functioning. Therefore, a balance needs to be struck between the advantages of plentiful incoming data and the dangers of overloading the system.

Measured intelligence quotient (IQ) appears to be rising in industrialised countries, and this may affect political behaviour, although the change must to some extent reflect the cultural importance of IQ in such societies. In the case of women secluded in the home, for instance, relatively little information is received, and the behavioural repertoire would no doubt be correspondingly limited. The high priority given by all totalitarian regimes to the control of information is evidence that they recognise the danger presented to their ideologies and monopolies of power by dissonant data. However, one unexpected consequence of the enormous and accelerating growth in available information is that it has become more and more difficult to interpret what these mean, as the basis for political action. A striking example is the current environmental crisis, or pre-crisis: experts of apparently equally impeccable standing come to widely varying, if not opposite, conclusions on such matters as climatic change or the risks of nuclear power. Yet the data are so complex that no layman can possibly make sense of them, without interpretation, and this raises the unavoidable problem of whose interpretation is to be followed. Possibly a new profession is needed to make scientific knowledge accessible both to decision-makers and to the general public; if such individuals existed, though, they could occupy a position of great power, without accountability to either professional peers or an electorate.

Information overload

If the computer model is used in a general sense, it would follow that there are limitations to the brain's 'channel' capacity, and in that case, the constantly increasing volumes of information being received by those such as political leaders may be placing too great a burden on the relevant processing machinery. The complexity of modern weapons systems, for instance, could be a particular source of overwhelming data (Dixon, 1987). 'Information overload' is a concept developed by Milgram (1970), derived from the urban sociology of Louis Wirth; it has been proposed (Lipowski, 1975) as an accelerator of cultural changes and value shifts, which make great demands on human adaptive capacity. Such a process is likely to be stressful, and might therefore contribute to poor functioning or disease; reduction of cognitive dissonance (*vide infra*) is one attempt to cope with such stress. Although it is quite credible that the brain has structural limitations to both the volume of data it can handle without strain and the speed with which this can be done, it is currently impossible to test such a hypothesis. Overload is more likely to be definable in terms of specific circumstances than in any absolute sense.

So far as input of data is concerned, there is evidence that the brain functions optimally around the mid-point of a scale ranging between very low and very high levels of stimulation. However, not only do so many more signals and messages now have to be processed by decision-makers than in the past, but a whole series of different agendas may have to be comprehended simultaneously – some for short periods and others persisting over years, e.g. the national, European, and worldwide dimensions of one same problem. Information which would have taken weeks to arrive before the existence of worldwide telegraphs may now be seen as it happens, through satellite television, and many different events can be watched in this way at the same moment. Furthermore, the whole activity is likely to be occurring in a state of high publicity, raising the level of arousal against which political leaders have to operate. Yet when over-aroused for long, the ability of the brain to integrate data into a meaningful whole is adversely affected, and judgement is likely to be impaired. This may have been a factor in the Cuban missile crisis, for instance, when a decision to attack the island, with unimaginable consequences, was only narrowly avoided. Similary, in July–August 1914, Sir Edward Grey may well have been overwhelmed by the volume of messages and documents reaching him, particularly as his sight was poor (L'Etang, 1969). In such emergencies, leaders may become unwilling to delegate, so that the amount of raw data coming directly to them is increased, raising the level of stress and perhaps reducing their capacity to cope (Vertzberger, 1990).

Even with the help of skilled bureaucrats, today's political leaders may find the amount and speed of information flow a source of increasing and sometimes intolerable stress. Factors such as international terrorism – which must be strongly related to the activities of the media – now produce a life of constant danger for many political leaders. There have, of course, always been political assassinations, particularly in certain types of regime, but in today's 'global village' the danger has spread considerably. Whereas Neville Chamberlain could walk from Downing Street to the Houses of Parliament, the present Prime Minister can only make the same journey in an armed convoy, and from behind locked gates.

The fact that all political events now take place at a high level of public exposure may have a number of effects: for instance, it may be expected to raise the level of stress in the domain of political life, since any mistake can be seen around the world in minutes. It is also likely to cause an overwhelming sense of accountability – meeting the media deadline may become more important than making the right decision. The fact that decisions have to be seen to be made within a particular time-structure thus becomes an independent dimension in political behaviour, although it also occurred sometimes in earlier periods, e.g. in the constraints of mobilisation plans and railway timetables in the decisions that led to the outbreak of World War I. More recently, the Bay of Pigs fiasco is said to have occurred in part because Kennedy and his key advisers, preoccupied with Berlin and other urgent problems, could never give it sustained attention for long (Neustadt & May, 1988). Similarly, much of the planning and policy review for the Vietnam War "came in the middle of days already full, and without the chance to stop and reflect"; a war game simulating the effects of bombing North Vietnam was run in September 1964 and showed that the country was invulnerable to it, but this was never mentioned in later discussions (Gibbons, 1986).

It is true that the 'intolerable strain of modern life' was described in previous periods which now appear as times of unbroken calm, but much objective evidence does indicate that today's conditions of political life are of a totally different nature. Certainly, the issue is one which deserves more serious consideration than it has received up to now, since the future of the human race might depend on it.

Information and beliefs

An important consideration in assessing a political leader is his/her characteristic style of decision-making, which may be on the basis of full information, on limited information, or largely on conviction and instinct (ignoring any relevant data). Stalin's collectivisation and purges, and some of Hitler's strategies, seem to illustrate the last of these possibilities, as – on a lesser scale – do the 'conviction politics' of the Thatcher government, seen most egregiously in the introduction of the Poll Tax.

Those in élite positions very often succumb to the temptation to allow themselves to be told only what they want to hear, and this tendency may be encouraged by such personality traits as aggression or dogmatism, which have helped them to reach such positions. Once such a situation has arisen, the upward flow of information is distorted, and the eventual result may be catastrophe; Ryszard Kapuscinski has described cases of this kind (if with some poetic licence) in *The Emperor* (1984), dealing with Haile Selassie, and *Shah of Shahs* (1985). The fall of Mrs Thatcher may have been largely caused by similar processes, while in 1966–67, Lyndon Johnson came to view critics of his policy as enemies and traitors, so that he was increasingly isolated from other opinions and information (Vertzberger, 1990).

The maintenance of beliefs at the same time as awareness of knowledge which is directly contrary to those beliefs – referred to in psychoanalytical terms as 'splitting' – helps to preserve the integrity of the ego by keeping divergent data in largely separate compartments. Thus, demands on the ego are assigned to distinct and external entities, neither of which ever wins over the other. Festinger's concept of 'cognitive dissonance' (1957) – that perceptions are shaped by existing knowledge or feelings to try and make them more consistent – also has particular relevance to politics, and to societies undergoing rapid change, although this often results in distortion of reality, both positive and negative. One of the ways of reducing dissonance is to deliberately fail to acquire information which might threaten established beliefs. There are numerous examples in political history: during the years of the forced collectivisation, Stalin only once went into the country; throughout the Third Battle of Ypres in 1917, Haig never saw the front at any time; in April 1970, when invasion of Cambodia was being considered, the CIA's specialists advised that this was likely to be unsuccessful, but their memorandum was never sent to the White House because the Director knew that Richard Nixon wanted only support for his intended action (Shawcross, 1979).

Piaget (1976) hypothesised that disturbing new information is homeostatically rejected by existing mental schemata, unless this eventually ceases to be possible, e.g. if the volume of data is too great. In

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a similar way, loyalty to a nation results in its members being seen as more positive than they deserve, and non-members more negative; relationships between nations or racial groups were described by Bateson (1972) as the projection on to the other of disavowed characteristics of one's own identity.

Brain laterality

In the past, most education has been conducted through left(brain)-sided strategies, which are mainly responsible for processes involving language, and this may have tended to encourage rigid habits of thinking and behaviour; a notable example was the Confucian system, associated with the Chinese imperial bureaucracy, which demanded universal obedience from the people. In recent education, however, particularly in Western societies, right-sided activities have become relatively more influential. This kind of education is more concerned with the social context of learning and with longer-term consequences; it may be expected to lead to more flexible thinking, which could affect political behaviour in unexpected ways. It has been suggested that through the narrow materialism of left-brain societies, many talents and abilities may be locked away in the unused parts of people's brains, but this does not mean that most of them possess great abilities that have been unrecognised.

Restructuring

It is quite likely that dogmas or myths represent very firmly established patterns of neuronal activity, although how they would become so is not known. Sequential or logical thinking is very effective, but cannot produce the insights that come from divergent thinking, which requires a restructuring of information. One of the problems of the current pressure of events is that it may not allow time for restructuring to occur, although *perestroika* is an attempt to do that – so far apparently unsuccessful. Both the Chinese Cultural Revolution and Stalin's collectivisation were vast restructurings, but on a basis of dogmatic ideology which resulted in enormous damage. Russian history in particular seems to have consisted largely of a cycle of periods of rigidity, interrupted by episodes of upheaval, which could perhaps be interpreted in terms of the psychological make-up of essential individuals, e.g. Peter the Great, Alexander II, Gorbachev (?). While, with the passage of time, all human systems have a tendency to develop rigidity of thought and action, some psychological counter-methods have been developed for restructuring these habits, on a small scale at least, through the encouragement of divergent or 'lateral' thinking (Buzzan, 1982).

That such diversity may be highly important emerges in the search for explanations of the rise of Western Europe to pre-eminence in the world – which seemed fairly unlikely at the beginning of the sixteenth century. Kennedy (1987) suggests that the Chinese, Ottoman, and Mogul empires, however imposing and well organised they then seemed, "all suffered from the consequences of having a centralised authority which insisted upon a uniformity of belief and practice, not only in official state religion but also in such areas as commercial activities and weapons development". In Europe, there was no such supreme authority, but rather a competitive, entrepreneurial environment, particularly after the Reformation. "Possessing fewer obstacles to change", Kennedy says, "European societies entered into a constantly upward spiral of economic growth and enhanced military effectiveness which, over time, was to carry them ahead of all other regions of the globe".

Influences on the brain

One contribution which psychiatry might make to the understanding of political behaviour is to explore the relationship between mental states and decision making in public affairs. This requires a consideration of many factors that adversely affect the psychological and emotional health of individuals who have the responsibility for such decisions.

Ageing

The fact that many political leaders – for instance, Hindenburg, Adenauer, Mao Tse Tung, Brezhnev, Franco, Zhivkov – have been relatively old at significant periods is unlikely to have been without influence on their actions. Churchill's impaired mental capacity in old age, which had begun by 1948 and was severe towards the end of his last administration, has been widely documented (e.g. James, 1986). Although not always a reliable witness, Liddell Hart (1965) claimed that in the early part of World War II, both the Minister for Coordination of Defence and the First Sea Lord were so old and deaf that they were often unable to follow discussions – a situation unlikely to have helped the direction of the war. Ageing is often associated with visual or hearing impairment, which reduces the amount of information that can be dealt with adequately by the person concerned. The crisis of communist systems which swept Eastern Europe in 1989 could well have had some connection with the tendency of these systems to develop and be ruled by gerontocracies, stemming from their party monopolies of power. The same phenomenon has been seen in many Third World states, e.g. Malawi, Zambia, Indonesia, Tunisia; a result of the tendency of nationalist movements to become institutionalised through the original leadership, this has almost certainly had an unfavourable effect on the development of these countries.

There is extreme variability in the ageing process, which is believed to be governed to a large extent by genetic programming, but social stimulation and continued activity both seem important in maintaining healthy functioning, provided that no actual disease is present. Apart from any impairment of intellectual capacity, flexibility of thinking and assimilation of new data - which must be important in political behaviour - tend to become more difficult with ageing, although possibly compensated for to varying extents by greater experience. Yet a fixed retiring age would probably be inappropriate for political leaders, because of the extent of individual differences. At the same time, with the lengthening expectation of life, electorates will become relatively older, and so perhaps more conservative.

Organic brain disease

Similarly, any disease which affects the central nervous system of a leader may have significant effects on political history: the neurosyphilis of Lord Randolph Churchill, Kemal Ataturk, Northcliffe, and possibly Mussolini, the strokes suffered by Woodrow Wilson, Lenin, Winston Churchill, Eisenhower, Brezhnev, and Nehru, or the Parkinsonism of Hitler and Franco are well-known examples. Edward Marjoribanks (Lord Tweedmouth) was suffering from pre-senile dementia while First Lord of the Admiralty in the internationally tense period of 1908–9, and gave away important information to the Kaiser; in 1948, Djilas was shocked by the appearance of Stalin, who seemed to have lost his mental grasp and interrupted their discussions with interminable bouts of eating and drinking (L'Etang, 1969). Ramsay MacDonald showed undoubted deterioration in his cognitive capacities from about 1933, when in his mid-sixties, suggesting an early - if not exactly pre-senile - dementia (Marquand, 1975). Joseph Chamberlain was disabled by a stroke in the early stages of his Tariff Reform campaign, leaving both that movement and the Conservative Party lacking an effective leadership.

The case of Woodrow Wilson, as described by L'Etang (1969), is particularly striking. This President suffered 12 illnesses between 1874 and 1910, and was diagnosed as having arterial degeneration as early as 1906. In December 1917, he was observed to have had an adverse change in personality, and in April 1919 was prostrated by an unexplained illness, after which he seemed deteriorated in both intellect and behaviour; it was then that he impulsively dismissed Colonel House, his main source of intelligence on European affairs. This history is consistent with a series of minor strokes, affecting Wilson's energy, judgement, and personality, and they were followed by two major ones after his return from Europe. He may well have developed anosognosia then, being unaware right up to the end of the extent of his own disabilities, and this could have accounted for his sudden dismissal of Lansing from the Secretaryship of State in February 1920. From a different point of view, George & George (1964) suggest that Wilson's emotional problems relating to his father influenced his dealings with Senator Lodge and others during the debate on the League of Nations, but even if this interpretation was relevant, organic impairment of the brain must have been more significant.

Lenin was noted both for the large size of his head, relative to the body, and for his prematurely aged appearance (H. Shuckman, personal communication). Lenin's stroke, partial disability, and subsequent death were profoundly influential on the development of the Soviet State, not least in opening the way for Stalin's dictatorship. Post-mortem revealed "an incredibly widespread sclerosis, as if this fossilization had been the result of some colossal mental labour" (Sinyavsky, 1991).

The organic afflictions of the brain also include ergotism, which took epidemic forms under certain climatic conditions, before modern food storage methods were developed. Matossian (1989) has argued that many important historical events, including the French and Russian Revolutions, were precipitated by the disturbances of brain functioning caused by widespread ergot poisoning.

Psychoses

Psychotic illnesses have been obvious from published accounts of a number of monarchs: Nebuchadnezzar, Cambyses of Persia, Henry VI, George III, Ludwig II of Bavaria, Ivan the Terrible, and Czar Paul I (Smith, 1982). Cromer (1916) also mentions Christian VII of Denmark, Marie of Portugal, and Gustavus IV of Sweden in support of the view that "the European chaos produced by the French Revolution was in some measure due to the abundance of [mad,] half-witted or incapable sovereigns who . . . governed their respective countries". George III's recurrent psychotic illnesses from 1788 (with possibly an earlier episode in 1765) must have greatly reduced the influence of the Crown at a critical period of political development, when the structure of Cabinet and Parliament was taking shape (Trench, 1964). Tucker (1964–65) believed Stalin to have been mentally ill "somewhere on the continuum of psychiatric conditions designated as paranoid", and the same has been reported of Nkrumah (Vertzberger, 1990).

Pronounced mood swings, probably of constitutional origin and likely to have a profound effect on a person's view of the world have been recorded, for instance, in the cases of Winston Churchill (Storr, 1989), MacArthur, Orde Wingate, Montagu Norman, Gadhafi, and Idi Amin, while MacArthur's conduct of the Korean War seems to have been strongly influenced by oscillations of mood between depression and elation (Acheson, 1970). Castlereagh, James Forrestal, and John Winant all appear to have committed suicide while in the grip of a major depressive episode, the former two having had a preceding history of paranoid fear and suspicion (Rogow, 1969). Coolidge suffered a major depression and lost interest in his presidential duties after his son's death in 1924, which was only his first year in office (Gilbert, 1988). In 1770, Charles Yorke committed suicide almost immediately after accepting the post of Lord Chancellor, in the political ferment over American taxes; this resulted in the departure of three other members of the Cabinet, and so the appointment to the leadership of Lord North, with profound consequences for future policy towards America (Tuchman, 1984). Almost certainly, there have been many more cases of politicians or leaders suffering such disorders which have not become widely known.

Drugs

The consequences of all these disorders on world history scarcely need emphasising, but the effects of drugs on the brain are also significant, both in respect of their use by political leaders and by the populace: that Gorbachev's first major initiative was a campaign against alcohol may be 'no accident'. F. E. Smith, J. H. Thomas, and George Brown would undoubtedly have had longer effective careers without their weakness for alcohol. Richard Nixon drank regularly at night, particularly during the Watergate period, to such an extent that his aides considered him incapable of dealing with any business – however urgent – at these times (Hersh, 1983).

Amphetamine, which is capable of inducing psychoses indistinguishable from paranoid schizophrenia (Connell, 1958), has almost certainly played a larger part in political history than has so far been acknowledged. Dr Morrell, who treated Hitler from 1936 to the end, administered large amounts of a variety of medication including amphetamine to him, and this was often given on demand. Heston & Heston (1980) have argued that Hitler did in fact suffer from amphetamine toxicity, iatrogenically induced, but it will never be possible to separate the effects of this drug from those of the sedatives, narcotics, and other stimulants which Morrell prescribed. In Hitler's case, psychiatric abnormalities that were recorded, particularly in the later years, included: "Sudden irrational outbursts of rage, increasing suspicion and mistrust, frenzied rampages of activity, chronic insomnia, secretiveness, and periods of disorganised, disjointed thinking", as well as episodes of depression and withdrawal (Lawrence, 1988). These would be generally consistent with amphetamine toxicity, but there were also physical signs, such as tremor of the left arm and an abnormal gait affecting the left leg. Gibbels (1988) has analysed newsreel films for the years 1940–45, and concluded that during this period Hitler was developing Parkinson's disease, which may also cause psychiatric abnormalities.

Eden is known to have used amphetamine, as well as tranquillisers and excess of alcohol, throughout the Suez crisis; the effects of drugs on his judgement, combined with those of his recurrent biliary infections, were almost certainly disastrous: "these medicaments could well account for the sudden alternations in Eden's moods during Suez, from feverish tantrums to bouts of almost unnatural calm" (Horne, 1988). This author states that during the crisis, Eden was described by close colleagues at various times as "intoxicated with drugs" or "quite simply mad".

John F. Kennedy also used amphetamine extensively, as well as steroids which were prescribed for his Addison's disease, probably since 1955; both could have affected his mood or behaviour at critical times. Dalton's pre-budget indiscretion in November 1947, which led to his resignation, has puzzled historians, but three months earlier, when there were acute balance-of-payments problems, he was misusing a combination of amphetamines, barbiturates, and alcohol, describing himself as "Dead to the world". Immediately after his resignation, he had both a physical and emotional collapse (quoted by L'Etang, 1980). Goering misused opiates throughout the war, and the resulting euphoria is likely to have affected his military judgements, although this is not to deny that the history of warfare is full of blunders which are not known to be drug-related.

In the general populations of many industrialised countries, the overall use of alcohol and tobacco has significantly increased in recent decades, as has that of minor tranquillisers and illegal substances. This increased consumption could influence political behaviour, e.g. by promoting relatively apathetic responses and rendering people less fit to participate usefully in public affairs. In parts of US cities, in the Shan states of Burma, and much of Colombia, the state power has effectively been usurped by drug-dealing organisations, as it was by bootleggers in some US cities during the Prohibition period. That political behaviour is profoundly affected in a number of ways by drugs which act on the mind seems self-evident.

Bodily ill-health

The effects of bodily ill-health on the actions of politicians may be profound, whether through debilitation and secondary depression of chronic pain or disability, the toxicity of infections, or the systemic consequences of malignant disease, all of which can reduce cognitive abilities. Eden's repeated episodes of infection, following his disastrous gall-bladder operation in 1954, must have affected his conduct of affairs at the time of the Suez crisis (James, 1988). Similarly, Chamberlain's final illness in 1940 could well have had adverse effects on his mind for some time previously, and because of his dominating influence in the government, that would have been politically significant. At the Yalta conference in February 1945, Roosevelt was terminally ill, and may not have understood clearly what was going on (Dixon, 1987), while the megalomanic irrationality of Ceaucescu's later policies may perhaps be explained by his repeated serious illnesses. William Pitt's chronic, severe gout incapacitated him during much of the Anglo-American dispute over taxation, and the irrascibility it caused badly affected his relationships with other politicians. Had this not been the case, it is quite possible that he would have taken effective charge of the government, and resolved the dispute peacefully (Tuchman, 1984).

Whether those seeking high office should be required to produce a clean bill of health is a question that should not be ignored, though there will always be the temptation to re-write any such rules to suit themselves. However, "the difficulty is that when an illness affects intellectual or judgmental capacities, adequate insight may be lacking to enable such a sense of responsibility to be operative" (Marmor, 1969). Although the health is carefully monitored of individuals (such as airline pilots) who could endanger small numbers of the public, no such safeguards exist in the case of those who can "threaten the lives and welfare of vast numbers of people or even the existence of human society itself" (Vertzberger, 1990). This author identifies "a sense among political scientists that issues relating to physiology-bound behaviour are more in the nature of gossip than a legitimate . . . area of research". The situation where a leader has become severely – and perhaps terminally – incapacitated may be particularly dangerous. This has been described as the 'captive king' situation, since the leader is likely to be protected and managed by a sycophantic inner circle, including doctors, who maintain secrecy about the real state of affairs. In spite of their frequent lack of mutual trust, king and court depend on each other for their survival, and may continue their symbiosis long after the leader has ceased to be capable of effective action. For a variety of reasons, doctors involved in such situations may not maintain their normal ethical standards: the final period of Franco's rule was a striking example.

Fatigue

Even the most effective brain, however, will be influenced by the circumstances under which it operates: fatigue, ill-health (as discussed above), worry, lack of relief time, emotional stress, inadequate sleep, and inappropriate use of food or drink can all be adverse influences. Until World War II, long-distance travel by politicians was nearly always by train or ship, which not only allowed gradual adjustment to time-zones, but provided useful intervals for relaxation: Chamberlain's three return flights to see Hitler in 1938 were probably the first significant use of air travel in important political events. However, long-haul travel by jet (particularly parallel to the Equator) causes marked disturbance of biological rhythms, possibly mediated through changes in secretion of melatonin, which is responsive to variations in light. Rhythmicity or 'circadian organisation' (Healy, 1987) is a fundamental property of life, representing knowledge of the environment in biological systems, and there is good evidence that disturbance of the rhythms of sleep, digestion, and daily activity subsequently impairs performance – especially decision-making – for several days at least (Wehr & Goodwin, 1981). The secretion of pituitary hormones is largely controlled by input of information from the eyes, which normally direct the brain as to whether it should be responding to the conditions appropriate to day or night, although social signals also contribute to this regulation.

Individuals vary greatly, however, in their sensitivity to such influences: both Mrs Thatcher and Sir Geoffrey Howe were reported to be superficially unaffected by the kind of travel which the average person would find prostrating. A brain which continues to function well under such conditions may be dependent on a strong bodily constitution, and possibly on an inherent need for relatively little sleep, which has been said to be a feature of many highly achieving individuals, such as Mountbatten (Ziegler, 1986). Nevertheless, there are grounds for concern that political leaders who may not enjoy that same degree of resilience could be in the position of taking major decisions at times when they are not thinking clearly because of conditions such as jet-lag. Fatigued decision-makers tend to become irritable and impatient when any doubts are raised about their proposals, so that their subordinates may then find it prudent to keep silent (Wiegele, 1973).

Another feature of modern politics is the unrelenting pressure of business, in which there are practically no work-free intervals for those at the top; the mobile telephone has ended even the short periods of respite that may have occurred on journeys. In contrast, until the 1920s, the British Parliamentary session occupied only a small part of each year, and included much formalised social relaxation. Diplomatic missions were few, and mostly staffed by members of the same social groups as the political élite, while the responsibilities of all governments were extremely limited, compared with those of today. Asquith regarded it as sufficient to visit his constituency once a year – during his summer holiday in Scotland. Every aspect of this scene is now totally changed, and every such change has increased the level of information flow and the intensity of activity. It cannot be demonstrated that political decision-making was generally better when such pressure was less, but the stakes are now much higher and the consequences of failure more serious.

Manipulation

Brain functioning might theoretically be changed permanently by deliberate manipulation, e.g. through operative intervention, drugs, or psychological methods, although there is little evidence that either of the first two could be accomplished on any large scale. Some Western prisoners succumbed to 'thought reform' during the Korean War (George Blake being the most important example), but events in the Baltic States from 1989 seemed to indicate that neither 50 years of indoctrination nor the liquidation of their national élite groups were effective in changing thoughts or feelings in the mass. Similarly, the apparent mass fervour in China during the decade of the Cultural Revolution appears to have had only superficial and transient effects. However, the technique of 'blowing hot and cold', often used both by Hitler and the Kremlin, can be very effective in disrupting opponents' power of decision and capacity to resist. William Sargant (1957) believed that in the Russian case, their use of this method was based on Pavlovian psychology, although there may be examples of it as early as the time of Catherine the Great – and as recently as the Baltic states in 1991. The activities of Comintern agents such as Willy Muenzenberg in the 1930s, which seduced many leading intellectuals of Western and Central Europe, seem to show a sophisticated understanding of aspects of both individual and group psychology (Koestler, 1954).

Psychological and personality factors

Psychoanalysis

An important approach to the question of brain functioning and politics is the psychoanalytical one. Littlewood (1989) points out that like almost every kind of human activity, political behaviour can be interpreted through Freud's developmental theory, in which regression to earlier phylogenetic patterns continues in the adult unconscious mind as the source of biological drives, occasionally bursting through the social order in such disguised forms as symptoms of maladaptive behaviour. 'Psychohistory', however, has tended to become rather discredited through excessive speculation about the psychology of prominent individuals, often based on minimal evidence. Freud's attempt with William Bullitt to 'analyse' Woodrow Wilson (1966) did them little credit, and the combined efforts of the historian Robert Rotberg and the psychoanalyst Miles Shore to interpret Cecil Rhodes (1989) have generally not been well received. However, Gay (1986) has proposed that it is only on the basis of psychoanalytical theory that a more than superficial understanding can be gained of the reasons for political behaviour. He claims that historians fail to explain puzzling events – particularly collective fears or self-destructive outbursts – by conventional methods; they try to apply psychological explanations, but these are bad or shallow ones. This view is initially attractive, but raises the problem of what criteria such interpretations are to be validated against – *quis custodiet ipsos custodes*? Large amounts of data about political events can certainly be made to fit a psycholoanalytical framework, but it then remains essentially a case of one man's interpretation against another's. That the role of the unconscious can be systematically identified in any specific historical situation is a proposition which so far lacks conviction. Lasswell (1948) claimed that "the accentuation of power is to be understood as a compensatory reaction against low estimates of the self", so that political behaviour is essentially an externalisation of individual motives - a view which has some face validity. The politician Alfred Milner suprisingly remarked that it was "Strange, how sex enters into . . . great matters of state. . . . It is never recorded, therefore history will never be intelligible" (quoted by Porter, 1989). It was, however, certainly recorded in such cases as those of Parnell and Dilke, whose falls had profound effects on British politics in the later Victorian period.

From a psychoanalytical perspective, the roots of Stalin's psychopathology have been identified by a number of biographers in his childhood experience of savage beatings by his drunken father (Tucker, 1974; Rancour-Laferrière, 1988). The consequence is said to have been a great sense of personal inferiority, which through unconscious defence mechanisms could have emerged as an inflated self-image and need to subjugate others. In the same way, his inferiority feelings and anxiety may have been countered by identification with aggressors - first Russia (Georgia's oppressor) and ultimately Hitler. When the German attack brought this to an end, he suffered a temporary mental collapse. Acceptance of this reading must depend both on the credibility of its underlying theory and on the adequacy of data on the subject, which in the case of Stalin's early life is uncertain. However, Coles (1987) points out that 'identification with the aggressor' has been proposed as the explanation for the psychological development of many people, including Hitler. What has not been explained, however, is why this should have such dramatic results in a few cases, but none at all in most.

Storr (1989) interprets Churchill's recurrent depressions in analytical terms, relating them to early emotional deprivation. Since his mother, when not physically absent, was indifferent to him, and his father showed little but disapproval, Churchill could only seek the missing unconditional acceptance of childhood by achievements that would impress them enough, and hence a lifelong struggle to impose his own order on the external world through the working out of "fantasies of infantile omnipotence". The downside of this character structure was greed, insensitivity, a weakness for charlatans, and the tendency to subordinate rational argument to instinct. Yet Storr thinks it likely that England owed her survival in 1940 to this "inner world of make-believe", since an 'objective' balance sheet of resources might have led almost anyone to the conclusion (as it did Chamberlain and Halifax) that the situation was hopeless. The missing element in Storr's reformulation of a historical turning point is the psychology of the nation itself. Lacking any collective memory of defeat or occupation, the British people had no concept of such an event, and were equally governed by a vision of inevitable triumph, which responded to that articulated so dramatically by Churchill; in the end, their joint conception became reality. Storr's analytical construction at least has an early autobiography for substrate, as well as fairly plentiful historical accounts of the Churchill family.

No such information exists in the case of Margaret Thatcher, yet Abse (1989) offers a psychoanalytical explanation of her, resting simply on the omission of her mother's name from *Who's Who*, and on brief but less than complimentary filial remarks in two reported interviews. From this alone, assumptions are made about her feeding and toilet training in infancy which are claimed to explain the personality features that governed British politics for over a decade. Abse gives an astute analysis of Mrs Thatcher's character, as observed in public life, and rightly maintains that the psychology of key individuals is critical to understanding political behaviour. All this, however, has nothing to do with his psychoanalytical hypotheses, which are subjective and untestable. Mrs Thatcher's most prominent feelings may well be anger, triumph and contempt; her determination to remain in control, combined with defective judgement and a sycophantic entourage, may well have represented potential danger to the nation, but all this can be descried by a shrewd political observer on its own merits. Psychoanalytical speculation in the absence of relevant facts, and influenced in unknown ways by the interpreter's own psychology, has nothing useful to add - as Bullitt and Freud revealed unintentionally in their book on Woodrow Wilson (1966). When Michael Foot wrote, in promotion of Abse's book, that it "can do incalculable, but highly necessary damage to the whole Thatcher face and image", the need to separate scientific study from political journalism becomes more important than ever.

Possibly more helpful is the analysis by Iremonger (1970) of the early histories of 24 British Prime Ministers, from Perceval to Chamberlain. Of these, 16 (67%) had lost a parent in childhood, whereas the average figure for the population in 1921 for that experience was 2%. Of those who had been so bereaved, all but one were reported to have shown a tendency to solitariness and reserve, all but two showed extreme reactions to subsequent bereavement, and all were considered to have manifested a persistent need for love and total support. Iremonger concluded that these politicians were governed by an unconscious motivation to achieve positions in life which would overcome traumatic early experiences and resentments – a view somewhat similar to Lasswell's (1948). These data seem impressive, but much more would be needed to test such a hypothesis, and no similar analysis has been published of any other group of political leaders.

Personality

Personality factors must be critical to much political behaviour, and presumably have some eventual substrate in brain functioning. Including the introversion/extraversion and authoritarian/liberal dimensions, they are likely to be associated with particular cognitive styles and types of motivation. Eysenck (1956) drew attention to the similarities in personality between Fascists and Communists, while Lasswell (1960) suggested that the anal type was likely to be an administrator, and the oral an agent of change. George (1987) points out that classification of personality is not the same as diagnosis: pigeonholing an individual into one of a number of existing categories does not in itself provide what is needed most – a discriminating theory or set of hypotheses about the structure and dynamics of an individual's personality system.

Strength of personality – a quality particularly difficult to assess scientifically – is likely to have been influential in the conduct of human societies from their first beginnings: "the combination of a strong charismatic personality with the [support] of other powerful figures, becomes a dominant controlling influence" (Lawrence, 1988). Such a situation can be used for either good or ill, one example of the good being Florence Nightingale, although in her case combined with prolonged neurotic and emotional disturbance. In the case of Wilhelm II, a vain, impulsive, and unstable personality, possibly reactive to his birth deformity, is widely believed to have been a contributory factor to the outbreak of war in 1914. Maudsley (1919) drew attention to his "eloquent and boastful orations, his sermons, his telegrams, his fierce injunctions to his recruits, his restless journeys and constant poses in the limelight". In Maudsley's view, this evidence of his character explained "the belief that he, the All Highest in Germany by divine right, was in alliance with, and the ordained instrument of the Most High in Heaven". In a rather similar way, Lyndon Johnson's personality has been described as highly narcissistic – characterised by simultaneous feelings of insecurity and grandiosity, leading to the continual seeking of public approbation (Tuchman, 1984). From the viewpoint of an industrialist, Harvey-Jones (1991) concludes that "positions of power are, by definition, ephemeral, while one's personal characteristics remain with one until death". He adds about the possession of power that "I can think of very few powerful people that have been improved by it as individuals".

There are also variations in energy level (e.g. Baldwin v. Thatcher); this capacity, probably genetically determined, is a neglected dimension. John McCloy, for instance, who governed the American zone of Germany and was a man of great effectiveness in many spheres of US life, was noted for exceptional qualities of this kind. Compulsive overcommitment is another personality trait not uncommon in political leaders, as in those at the top of business and industry. Combined with a very strong mental and physical constitution – as in McCloy's case – it can result in enormous productivity, but if associated with vulnerability of either kind, is likely to have severe consequences eventually. One such case recorded by L'Etang (1980) is that of Walter Monckton. Although the use of power must to some extent be governed by innate personality structure, such behaviour may be determined partly by the role expectations that attach to many high positions. Paradoxically, the qualities needed to get to the top of the 'greasy pole' may be very unsuited to the processes of policy-making and administration, once that goal is reached; in this respect, politics may have much in common with business. Dixon (1987) gloomily concludes that those "who are unfettered by moral scruples, who are prepared to lie or cheat their way to the top, who will make promises they cannot keep and may [even assassinate] their rivals have a huge advantage over those held back by notions of fair play".

An exceptional political personality was that of T. E. Lawrence – the subject of a biography by a psychiatrist (Mack, 1976), who has examined the evidence of his life in exhaustive detail. Lawrence clearly recognised a sense of destiny from quite an early age and "took the development of himself . . . as the principal task of his life". At the same time, his personality was distorted by growing awareness of illegitimacy – his own and his mother's – with the deceptions and obscure communications that inevitably resulted from this at the time. Mack concludes that Lawrence's extraordinary capacity to move among peoples of other classes and races, empathise with their aspirations, and mobilise them for action derived from "the complex and unsettled elements of his own identity". While still in his twenties, Lawrence found a situation which required all his outstanding courage and stamina, and where his heroic fantasies could be played out in real life; with little military training, he proved to be a guerilla leader of genius. Yet the aftermath of the Arab

Revolt left him overcome with guilt and shame, reinforcing those conflicts over self-worth which derived from his earlier life and were never resolved. Perhaps his greatest tragedy was to have peaked in performance by the age of 30, leaving him no further worthwhile role, although had he lived until World War II, and he might once again have been 'matched with the hour'. Mack's psychiatric understanding has helped to elucidate an enigmatic figure, but in general, the study of personality in politics has made disappointing progress, and still has little scientific basis.

Adaptation

Evolution

It may well be that clues to the brain's place in political behaviour should be sought in evolutionary processes and in the role played in these by aggression. Rogers (1989) describes the outstanding feature of the evolution of the nervous system as "the cerebralisation of function" – the moving forward of ultimate control of behaviour from parts of the brain governed largely by instincts to newer parts, which are concerned with conscious thought. At the same time, evolution seems to have 'favoured' the growth of intelligence. "In the struggle for survival", he continues, "Genes coding for problem-solving abilities will become more numerous, and behavioural repertoires will become more complex. . . . Intelligence has evolved because it has been advantageous in local conditions at particular times". So the highest development of intelligence in evolution thus far has been through man's successful adaptation to the needs of competitive survival. This, as Sherrington (1940) first pointed out, was by the enlargement of man's aggressive behaviour, so that those species whose lives threaten his own have been progressively exterminated. The growth of intelligence went hand in hand with the heightening of aggression.

Thus in evolutionary terms, the human brain – which evolved for the needs of a hunter-gatherer – may be regarded as hardly suited to today's circumstances, even though its capacity is vast in comparison with other information-processing systems. Our genetic make-up appears to transmit capacities for altruism which ensure survival of the gene pool and the protection of group interests, but the relevant group is one of 100–200, rather than the impersonal mass of a modern state (Masters, 1989). Ornstein (1989) believes that the speed and magnitude of present-day scientific and technological change "has made biological evolution completely inadequate as a way for human beings to adapt to their environment. . . . The human gene pool cannot change fast enough to make a creature originally suited for dodging spears suddenly suited to dodging nuclear warheads". Our species, he says, "did not evolve to comprehend the problems associated with . . . gigantic numbers" for example, the fact that in four years, the world's population will grow by more than the entire total alive at the time of Christ. Politically, such questions tend to be regarded as insoluble, and problems requiring the analysis of long-term trends to be avoided, in favour of easily-graspable and cleverly advertised immediate measures. The same point was made, shortly before his death, by I. F. Stone: "the rate of technological change, especially in weapons, is so fast while the rate of change in the human psyche is glacial. In Athenian times all you could destroy was a civilisation. Now you can destroy the world" (quoted by Mirsky, 1989). A related process is the insidious complacency which is seen in relying on machines and technological systems to avoid risks, instead of on human observation and skills. Such disasters as the Chernobyl explosion may be traced to this tendency (Reason, 1989).

The 'dichotomy of the human mind' (MacLean, 1958), with splits between logic and belief, reason and faith, and intellect and emotion, has been related to the development of the cerebral cortex, within a time-frame of unprecedented shortness in evolutionary history. This resulted in poor co-ordination between it and the older structures of the central nervous system, so that the irrational nature of human behaviour and human history might well be explained on a biological basis (Koestler, 1979). In *The Ghost in the Machine*, Koestler proposed that human history could be portrayed by two contrasting curves. The first is of exponential form, indicating the progress in accumulation of knowledge, communications, and power, as well as in size of population. The second, indicating ethics, social morality, and spiritual awareness is almost completely flat. In structural terms, the first is the function of the cerebral cortex, and the second that of the older parts of the brain. Inadequate integration, both anatomically and physiologically, between new and old brains might therefore explain this difference and also some of the appalling aspects of human history, although how phenomena such as 'social morality' can be measured is an unanswered question.

Razis (1989) suggests that "the paranoid streak of human behaviour . . . can be a fault in the strategy of biological development . . . we cannot wait for spontaneous mutations to correct it". He hopes that a new understanding of history through biology and neurophysiology might influence both public opinion and political leaders to approach problems such as environmental pollution or war and peace in a more rational way. It is, however, difficult to share this optimism, particularly as the relevant scientific knowledge is still incomplete, and the ethical issues raised unlikely to be resolved. An urgent task for the human race would seem to be the development of strategies to neutralise traits such as aggressiveness, which although they had survival value in the past, have now become not merely a liability but a threat to survival (Bartalos, 1990). Yet even if it was known how to achieve this change, its implementation seems politically impossible and involves almost as much risk as doing nothing.

In strict terms, it would be simplest to say that there is no adaptation of the human brain to modern politics: in the evolutionary sense, adaptation is a process that occurs only over immense time-periods. If one were to ask – is the human brain well adapted to conditions of present-day life, or are those conditions developing in ways which are appropriate in evolutionary terms to the brain? – it might be reasonable to answer 'no' in both cases. Is the brain, in fact, an adaptable organ? In a long-term, evolutionary sense, it is superbly so – but in the scale of most human activities, it is not. However, the possibility now exists of short-circuiting evolutionary adaptation by genetic engineering.

Potential for adaptation

Should there be concern, then, about the brain's powers of adaptation? The following statements by three writers – Thomas McKeown, a pioneer of social medicine; S. V. Boyden, an ecologist; and Robin Fox, an anthropologist – suggest that there should.

> "The human genetic condition is much the same today as it was 100 000 years ago, before the advent of any pastoral, agricultural or industrial activity. We now face vastly changed conditions with the genetic equipment of hunter gatherers" (McKeown, 1988).

> "If the conditions of life of any animal deviate from those . . . which prevailed in the environment in which the species evolved . . . the animal will be less well suited to the new conditions than to those to which it has become genetically adapted through natural selection and consequently . . . maladjustment may be anticipated" (Boyden, 1973).

> "Our evolved repertoire was not intended for this environment . . . nations of 600 million, or in cities of 15 million. . . . At least 99% of our existence [as a species] . . . was [that] of a small-scale hunter. . . . We are an old animal coping with a startling new world of its own creation that has got out of hand" (Fox, 1982).

Moravec (1988) has pointed out that billions of years of experience about the nature of the world and how to survive in it are encoded in the sensory and motor parts of the brain. Reasoning can only be effective because it is supported by this much older, and much more powerful – although usually unconscious – sensory and motor knowledge. Since purely genetic processes are limited in their ability to predict future environmental changes or to provide responses for them, the ability to learn is likely to have emerged early in evolutionary history, to enhance biological fitness. Part of the evolutionary process of freeing our behaviour from its primitive condition of being bound to external stimuli is the development of conscious representations of the environment. Sperry (1975) proposed that this genetically determined organisation of the brain allows inner images of the real world to be manipulated, so that implicit trial and error responses can be made, and that way of avoiding possible errors in the real world is a rationale for the evolution of thinking. Any total conception of the nervous system must also see man as genetically endowed to function as a member of a group which has built-in drives, such as attachment, to behave in a particular way. This genetic influence is clearly relevant to political behaviour, and psychiatry has contributed greatly to its understanding, particularly through the work of Bowlby (1973–80).

Will genetic engineering, then, become a matter of 'Design your own Prime Minister'? Wolpert (1985) points out that a characteristic feature of science is the unexpectedness of its findings; it is impossible to predict, except in the crudest terms, what will or will not be discovered. For instance, the basis of genetic engineering, which emerged about 40 years ago, could not have been foreseen a fairly short time before that. At present, there is considerable anxiety about the possibly unpredictable consequences of this development, but Glover (1984) suggests that the moral problems involved are essentially similar to the old ones which relate to changing human nature through church, school, or selection of mates. Like any scientific knowledge, the results of the genetic revolution can be used for the benefit of people or as a tool of coercion and for commercial return. How this choice is made, however, is essentially a political matter.

Conclusion

It has not been the purpose of this paper to paint an alarmist or merely negative picture. Like anyone else, statesmen are fallible human beings; the tendency both of political processes and of the mass media to project them as having superhuman wisdom or abilities can only result in disillusionment, if not worse. Also, like other people, political leaders may experience an infinite variety of disorders, mental or physical, which could harm their capacity for decision-making, as the evidence reported above makes clear. The much more complex nature of modern societies, and particularly their hugely increased flow of information, results in the cognitive and executive abilities of these individuals being subject to unprecedented long-term stress. Compared with earlier periods, the scale of such issues in the present political agenda as unchecked population growth, climatic degradation, and the dangers of nuclear accidents means that the stakes for success or failure have risen beyond any previously known. Although leaders are only human, some of them control superhuman power, in a way that uncomfortably recalls the sorcerer's apprentice.

In these circumstances, the cerebral functioning of political leaders should be understood better, and should be a matter with which people in general have a legitimate concern. On the basis of their special knowledge, psychiatrists and those in related disciplines may draw attention to the issue and interpret it to the public, but beyond that their role is problematic. What should have been done in 1956, for instance, when Eden, although it was clear to many that he was unfit to have charge of Britain's affairs, was acting in ways which jeopardised not only these, but the stability of the entire world? Marmor (1969), pointing out the difficulty of making psychiatric assessments of those who may be unwilling to give their co-operation, concluded that "The only meaningful protection that a nation can have against such private illness rests in a democratic process of checks and balances that will not permit inordinate or arbitrary power to be exerted by any one individual". Yet today, should not this process include some fail-safe mechanism to protect people worldwide from the consequences of human frailty in its psychiatric manifestations? As a start, greater scholarly contact and shared discourse between political scientists on the one hand and psychological scientists on the other could only be helpful, but the crude application of psychiatric interpretations – particularly to figures of the past – would be best avoided.

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The Evolution of the *British Journal of Psychiatry*

HENRY R. ROLLIN

Whereas the history of the Royal College of Psychiatrists has been reasonably well documented, that of its journal, under its various titles, has received little attention. What follows is an attempt to redress the balance, but this could not have come about if my attention had not been drawn to the existence in the College library of the original, handwritten minutes dating from 1841 of the Association of Medical Officers of Asylums and Hospitals for the Insane and the succeeding body, the Medico-Psychological Association. This historic treasure, to steal a line from one of its pages, written in immaculate handwriting and expressed in elegant Victorian Gothic prose, "contained an unworked mine of golden wealth".

Virtually from its very beginning, the Association felt an urgent need to found a journal of some sort, not only as a means of communication between its members, but also as a way of disseminating information to the outside world. Thus, at the second annual meeting held in Lancaster (ten members and three visitors were present) on 2 June 1842, it was resolved, "That the thanks of the Association be given to Mr Thurnam, and that he be requested to allow the Association to print his paper for distribution amongst its members". However, nothing came of this resolution, and it fell to Mr Thurnam to seek permission at the annual meeting held in London on 6 June 1843 (eight members were present) to print his paper himself, "if the Association would not deem this step disrespectful". The members present played their part in this courtly game and the request was graciously "acquiesced to". There is a telling footnote in John Thurnam's book, *Observations and Essays of the Statistics of Insanity*, published in 1845, which reads, "The Association of Medical Officers for the Insane, formed at Gloucester in 1841, has not been unproductive of good. I ought perhaps to state that a considerable part of the first chapter of this work was read to the annual meeting of this *little society* [my italics] held at the Lancaster asylum in the summer of 1842".

It may well be that the description of the Association as a "little society" gives a clue as to why it failed to publish this particular paper, and those read at subsequent annual meetings. It was, in fact, a little society struggling to maintain its existence. The attendance in these early days was meagre, but included among its number were those stalwarts who have become folk-heroes of British psychiatry: for example, John Conolly (Hanwell), Samuel Hitch (Gloucester), Samuel Gaskell (Lancaster), John Thurnam (The Retreat, York) and John Bucknill (Exeter). It is only fair to assume that the financial resources of the Association were correspondingly meagre and that to embark on the publication of a journal was beyond its financial competence.

It is salutary to note, however, that although the College has had a continuous existence – under different titles – of 150 years and can legitimately claim to be the oldest of its kind in the world, its journal cannot share the same distinction. It was beaten to the post by several lengths by two journals, one British, the other German. The former owed its existence to the private enterprise of its editor, Dr Forbes Winslow, and was first published in 1848 under the title *The Journal of Psychological Medicine & Mental Pathology*. For the time they co-existed, the relationship between this journal and the *Asylum Journal* was most cordial and conducted "in no spirit of rivalry".

The German publication, however, is the more important in a historical context, as witness the minutes of the annual general meeting of the Association held on 26 September 1844, at The Retreat, York (six members and four visitors attended), which are worth quoting *in extenso*:

> "Read a letter dated June 1st 1844 from Dr Julius of Berlin addressed to Dr Conolly of Hanwell and requesting him to inform the present meeting that an Association had been formed three years since of the Directors of all the Lunatic Asylums together with the Physicians cultivating principally mental diseases – in the whole of Germany with the view of publishing a Journal entirely devoted to that department of the Medical Sciences, and stating that he was commissioned by Professor Damarow of Halle the Chief Editor of the journal referred to, to present a copy of the first number just published, to this association as a token of the high respect entertained for it by the continental association and the desire of its members that this Association would follow the example of the former by publishing a periodical devoted to the same important subject by which means a mutual exchange of Publications might take place which would be highly beneficial to both nations."

To what extent the officers of the Association were goaded by the Germans into publishing a comparable journal it is impossible to determine. It is likely that the spirit was willing, but the coffers were empty. If this was so, it would explain the resolution carried at a meeting later that same day held at the York Asylum (six members and two visitors were present). It follows the reading of a paper by Dr Wintle on the use of opium and narcotics generally in the treatment of "acute mania and other maniacal disorders", and reads:

> "The paper now read appearing very interesting and to contain facts of much practical value which would be very desirable to have more generally disseminated that Dr Wintle be requested to publish the same in some of the Medical Periodicals or otherwise as he may deem best and maybe most suited to his own convenience."

What is so pertinent is that, probably in the light of experience, there was no resolution to allow the Association to publish the paper itself, as had been vainly resolved in the case of Mr John Thurnam's paper read on 2 June 1842.

However, there was a further attempt to rekindle enthusiasm for a journal at the meeting at Littlemore Asylum, Oxford, on 24 June 1847 (nine members and two visitors were present). It was resolved "That, It is desirable that this association should issue, from time to time as it shall be hereafter determined upon, a Volume of Contributions relative to Insanity in particular and to Psychology in general". It was further resolved: "That, The Secretaries be authorised to communicate with each Member of the Association to ascertain how far he will contribute to such a production". A committee was formed "to consist of Mr [Samuel] Gaskell, Dr [John] Thurman, Dr [E. H.] Wintle and the Secretaries, with power to ask their members, for the purpose of receiving the replies to the enquiries made by the Secretaries; and to determine on any steps to be immediately taken in furtherance of this object".

But the appeal fell on deaf ears, or more likely, dry pens. There is a doom-laden entry in the minutes, dated 17 July 1851, which reads:

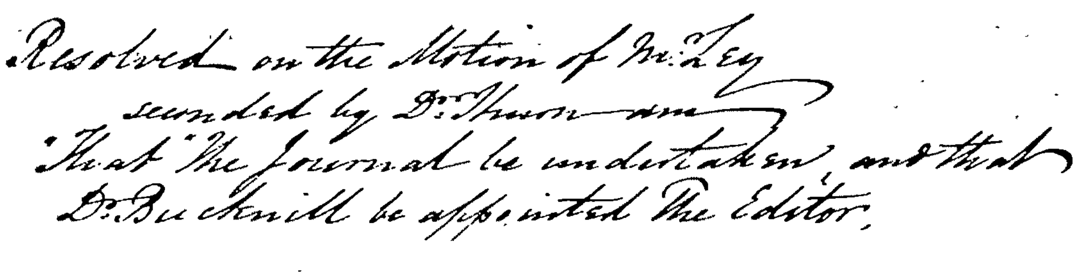
> "Their attempt to collect contributions from the Members of the Association for the purpose of forming a Volume for publication has entirely failed, no replies having been received to the Society's resolution upon this point, at the last meeting. There having been nothing for the committee, nominated for the purpose to do, in examining, and arranging the anticipated articles the Secretaries have of course not called them together."

But those members, particularly Mr Ley and the Drs Bucknill, Conolly and Hitchman, who were fierce in their determination that there should be a journal, were not to be put off by past failures. Could it be that they were inspired by the reputation of Oxford as the home of lost causes, in that the adjourned meeting of 10 July 1852 was held there on 21 July 1852 (13 members and two visitors present)? A minute of that meeting reads:

> "Mr Ley ably advocated the Establishment of a Journal for the use of the Members of the Association and submitted to the Meeting several Propositions connected therewith (which will appear in the first Number of the Journal). Dr Bucknill addressed the Meeting at considerable length on behalf of Mr Ley's propositions, in which he was supported by Dr Conolly;– an interesting discussion ensued and it was finally Resolved on the motion of Mr Ley seconded by Dr Thurman That 'the Journal be undertaken and that Dr Bucknill be appointed The Editor'." (Fig. 1)

So the *Asylum Journal* finally made its bow on 15 November 1853, with the determined and dynamic Dr John (later Sir John) Bucknill as its editor, an office he continued to fill with distinction for the next ten years.

The first issue of the Journal, 16 pages in all, I have previously described (Rollin, 1988) as "a bit of



Resolved on the Motion of Mr. Ley
seconded by Dr. Thurnam
That The Journal be undertaken, and that
Dr. Bucknill be appointed The Editor.

Fig. 1 Excerpt from the original minutes of 21 July 1852.

a hotchpotch". The editorial chair of any journal is always a hot seat, particularly so in that case of a brand new journal whose policy is still somewhat vague, and whose finances are more than a little shaky. Nevertheless, with each succeeding issue, the policy of the Journal became more clearly defined and the finances more secure. Apart from the publication of learned papers, including the Presidential Address at Annual General Meetings, whose minutes were also included, the Journal became increasingly a means of communication and an exchange of information between members, so many of whom were marooned in their isolated institutions.

As an example of the use (and partial failure) of the Journal as a means of communication, the following minute from a meeting of the Association held in London on 22 June 1854 (13 members present) is of interest and is an illustration of the fact that the excuses for non-attendance at meetings are evergreen. The minute reads:

> "The Secretary stated, that he was entrusted with a message from Mr Commissioner Gaskell to the Association, expressing his regret that he was unable to attend the present Meeting, in consequence of not having observed the notice of it given in their Journal. Dr Tuke stated, that Dr Conolly also regretted his absence, which arose from the same cause as Mr Gaskell's and it was determined by common consent, that it will be advisable for the future to give notice of Meetings, not only in the Journal of the Association, but also by circulars addressed to each member."

At the same meeting, the improved status of the Journal and its editor were officially recognised when it was resolved that the "Officers of the Association [were to include] the Editor of the Journal".

The financial viability of the Journal is confirmed in the Treasurer's Report at the Annual General Meeting held at Derby in October 1856 (27 members present). He told the meeting that "the proceeds of the sale of the first volume (fourteen numbers) of the Journal were paid over to the Editor, Dr Bucknill, in accordance with a resolution to that effect adopted by the general meeting and that Dr Bucknill had therewith given him a receipt in full for the payment and liquidation of all claims for the publication of the first volume of the Asylum Journal".

He also indicates in his report that a determined attempt was being made to spread the sale and influence of the Journal beyond the membership of the Association "by inducing members of the Committees and chaplains of their Asylums, etc. to become subscribers to the Asylum Journal".

The Hon. Treasurer ends his report on a note of uncompromising optimism:

> "that he might congratulate himself on being thus prepared to meet every claim on the Association and to declare on the part of the Association that he owed no man anything save warm acknowledgements of gratitude to the Editor for his unwearied labours and to the Secretaries for their steady efforts to extend the influence and numbers of the Association, and to consolidate its organisation."

That this optimism was in large measure justified is reflected in the minutes of the meeting of the Association in Edinburgh on 28 July 1858, in which it is written in the Treasurer's Report that:

> "Dr Robertson also alluded to the increasing circulation of the journal of the Association. The publishers had furnished a statement by which it appeared that the sale in London of the two numbers for July and October 1857 had realised £18.18 and this was quite independent of the sale of the journal to the regular subscribers."

In October 1855, the journal changed its format to what is referred to in a minute of October 1856 as "its improved and more expensive form". What is of at least equal importance is that it also assumed a new title, *The Asylum Journal of Mental Science*. There is nothing in the minutes relating to any discussion of this change in format or title, and it must be concluded that Dr Bucknill exercised his editorial authority, with or without the approval of his colleagues.

There is no doubt or ambiguity about the next change in title. In the minutes of a meeting of the Association held in Edinburgh on 28 July 1858, it categorically states: "On the motion of Dr Harrington Tuke seconded by Dr W. A. F. Browne the title of the 'Journal' was altered by the omission of the word 'Asylum' so as to stand '*Journal of Mental Science*'." And so it stood until 1963, when the title of *The British Journal of Psychiatry* was adopted – one it enjoys to this day.

I referred early on in this paper to the "unworked mine of golden wealth" which the minutes of the Association represent. It has been my privilege, to steal a little more from the same page, to "open the veins of this treasure". In so doing it has been possible to trace, first of all, the grave difficulties that had to be overcome before successful conception of the journal could be claimed. For this success, it is likely that thanks must be given to its German counterpart from whom inspiration at least was acquired. It is evident, too, in studying the neonatal records, that the infant journal was, to say the least, puny. Yet it not only survived, but with careful nurturing it flourished to become what is recognised today as one of the world's most prestigious journals, *The British Journal of Psychiatry*.

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The History of 'Nervous Disorders' from 1600 to 1840, and a Comparison with Modern Views

EDWARD HARE

In the 18th century the main varieties of nervous illness – hypochondria, hysteria, the spleen, the vapours and dyspepsia – became included under the general term 'nervous disorders'. When no physical disorder of the nerves could be detected in such conditions, the hypothesis of nervous disorder was replaced by the more vague concept of 'nervous temperament'. The fact that there is still no evidence of pathological change in such cases continues to expose physicians to the alternative hypothesis of a purely psychological cause. The modern era in our understanding of the nervous system may be said to date from 1843 when Du Bois Reymond showed the electrical nature of nervous conduction. The publication of Jorden's *Briefe Discourse* in 1603 may be taken to represent the start of a discrete period (1600 to 1840) in the history of neurotic illness.

The group of disorders known in the 18th and 19th centuries as 'nervous disorders' – which includes hypochondria, hysteria, and dyspepsia – had long posed a problem for the medical profession. They were very common and produced much minor ill-health. Their symptoms were responsible for many medical consultations, but no rational treatment was possible, as there was no general agreement about their causes.

An essential feature of 'nervous disorders' was (and still is, if the term is to be used) that, although they were characterised by bodily symptoms, no signs of local disease could be found in the bodily organs. Thus, it remained uncertain how far the symptoms were caused by a bodily disease which could not be detected (in the existing state of the medical art) and how far they were purely psychological (or spiritual) in origin. During the 20 centuries from Hippocrates to Vesalius, two quite different explanations of the disorders persisted side by side. The medical explanation was that they were bodily disorders caused by an imbalance of humours, the seat of the disorder being the uterus in hysteria and the liver or spleen in hypochondria. The religious (and the popular) explanation was that they were spiritual diseases caused by evil spirits taking possession of the sufferer's mind, and with the growth of belief in witchcraft, this idea came to include the belief that possession could be induced by witchcraft.

The 17th century saw the downfall of both these aetiological hypotheses. Progress in science during the preceding century had already undermined the old humoral doctrine, for which there was little or no physiological evidence; and Harvey's demonstration of the circulation of the blood (1628) overthrew Galen's teaching on that subject and so laid his other teachings open to criticism. At the same time, the freedom of thought released by the Reformation was weakening the belief in evil spirits and witchcraft. However, the belief in witchcraft as a cause of possession did not yield easily to reason: for although there was no objective evidence for witchcraft, there was also none against it. A person accused of witchcraft in a court of law could never prove her innocence; the accusation could only be refuted by showing that the symptoms of the 'possessed' were being simulated or could more reasonably be explained in terms of a bodily disorder.

Natural causes in the body

A landmark in this new era was the publication in 1603 of Edward Jorden's *Briefe Discourse of a Disease called the Suffocation of the Mother*. In the previous year, Jorden had been one of several members of the Royal College of Physicians giving evidence at the trial of a woman accused of witchcraft. He (and one other member) concluded that the woman was not a witch but was sick. The curt judicial rejection of this opinion stung him into writing his book where he took issue (p. 3) with those who "are apt to make everything a supernatural work which they do not understand" and where he maintained that the symptoms commonly taken to be the effect of witchcraft have "their natural causes in the body" (see note 1 of Appendix).

Jorden accepted the traditional view that hysteria was a disorder of the uterus (the 'mother') but he

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A fuller version of this paper is published as Appendix III of *Benjamin's Son* by P. H. Schurr (1991), published by Royal Society of Medicine Services, London.

was concerned to explain how a disorder in one organ could lead to such varied symptoms as fainting fits, tremblings, palpitations, dyspnoea and feelings of suffocation. The traditional explanation was that the other organs acted in 'consent' or 'sympathy' with the affected part, and Jorden described three particular ways in which this might happen. These were: by direct contact ('vicinitie'); by diffusion of "an offensive vapour or humour"; and "by similitude of substance or function", as, for example, the similitude which "all nervous parts have with the brain". The spread of disease by direct contact is a readily acceptable idea – Jorden gives the example of disturbed bladder function due to prolapse of the uterus. But his other two suggestions were to preoccupy physicians and physiologists during the next two centuries.

Sympathy

The doctrine of sympathy dates at least from Galen's time (the 2nd century AD), but it is of no real value unless accompanied by an attempt to explain how the sympathy is brought about. Galen, who held that hypochondria and hysteria were disorders arising from sympathy, explained this in terms of vapours ascending from the stomach or uterus to the head (Whytt, 1967), and he also compared the attraction between other organs and the uterus to the attraction between iron and a magnet (Rowley, 1793). Some such explanation was certainly needed if an attempt was to be made to understand how symptoms arose: for how was it, asked Rowley (1793, p. 391), that a scratch on the hand or foot could lead to "that horrid, fatal disease, the locked jaw?" The view that sympathy could be explained by humours or vapours persisted through much of the 17th century – Harvey (1651) accepted it for hysteria. But it was the nervous system which soon seemed to have the stronger claim. Laurentius, in about 1600, had suggested that the sympathy between the uterus and the breasts during pregnancy was transmitted partly through the vena azygos and partly through the intercostal nerves (Whytt, 1767); and Thomas Willis, whose anatomical studies commanded wide respect, speculated that it was in the nervous system that "the hidden causes of disease and their symptoms, which commonly are ascribed to the incantations of witches, may be found out and clearly laid open" (Willis, 1684, p. 125). Since the seat of hypochondria and hysteria was believed to be in the abdominal organs, the conveyors of sympathy would most naturally seem to be the abdominal chain of nerves. This led Winslow (1732) to propose a new name for what had been called the intercostal nerves. Because of "their frequent association with almost all the other principal nerves in the body", he thought they would better be called "the great sympathetic nerves" (Vol. II, p. 164).

A belief in the importance of the nervous system as the principal mediator of sympathy had become generally accepted by the end of the 17th century. But when further study showed there might be no evidence of disease in the spleen or uterus in cases of hypochondria or hysteria, the conclusion was that the seat of the disorder must be in the nerves themselves rather than in the organs. It was this conclusion which (we may presume) led to the concept of 'nervous disorders', a term which (in Britain at least) came into common use after 1733 when Cheyne's book *The English Malady or a Treatise of Nervous Diseases* was published. Thereafter, sympathy was less often invoked.

The doctrine of sympathy was the earliest attempt to explain what seemed, within the confines of the body, to be 'action at a distance'. It was believed, for instance, that a wound would be healed by applying a secret remedy to a cloth stained with its blood or to the weapon which caused the wound. The concept of 'action at a distance' also extended to the use of medicinal plants whose leaves resembled the shape of the organ believed to be affected. As an explanation of 'nervous disorders', 'sympathy' was replaced by hypotheses based on the new discoveries in physiology and anatomy. Today, its vestiges remain in medical terminology – the sympathetic nervous system, sympathetic ophthalmia – but the idea, the name, hovers in the background of medicine, ready to be invoked when an old synthesis is breaking down or a new one seems to be emerging. Copland (1824) and Philip (1825) briefly recalled it when all the newer explanations of nervous disorders were seen to have failed. A modern instance, perhaps, was Sherrington's concept of integration as the essential function of the nervous system, a concept in its turn superseded by the discovery of the reticular activating system (Walshe, 1958).

Jorden's claim that hysteria had its "natural causes in the body" can only be made good when the natural causes have been found. Until then, the somatic hypothesis is no stronger than psychological hypotheses such as those of evil spirits, magnetism or psychoanalysis. The judge who rejected Jorden's opinion in 1602 did so because if neither natural cause nor remedy could be found then the disorder had to be supernatural (Bradwell, 1603). However this does not allow for the cause being natural but unknown.

The persistent (and persistently unrewarded) belief of physicians in a somatic cause of nervous disorders – and of the functional psychoses too – must reflect either an intuitive feeling derived from wide experience of disease or a professional claim that such conditions be considered to fall within the province of medicine. Whatever the reason, the attempt by physicians to find a somatic cause led to much speculation, though little real progress, throughout the 17th and 18th centuries.

The vapours

Until the 'nervous' hypothesis of hysteria and hypochondria finally gained ascendency in the 1730s, the older idea of these disorders being caused by vapours or disordered humours in the spleen was widely accepted. As Cheyne put it in 1733 (p. 194), "every symptom not already classed under some particular limited distemper is called by the general name of spleen or vapours". The concept of 'vapour' was closely related to that of 'humour' but from the early 17th century it became the preferred term, probably because a vapour, unlike a humour, could be identified with a real substance, the 'wind' which was apt to be generated in excess during digestive disorders. In the mid-17th century, de la Boe regarded hysteria as due to vapours arising from the digestive tract (Mettler, 1947); and Purcell (1707), in his *Treatise of Vapours*, explained many of the symptoms as the result of wind from the stomach and intestines causing pressure on the nerves there. Purcell described the initial symptoms of the vapours as a heaviness in the breast and a grumbling in the belly. The patients then "belch up, and sometimes vomit, sower, sharp, insipid or bitter humours. . . . They have difficulty in breathing and think they feel something that comes up into their throat which is ready to choke them; they struggle; they cry out and make odd or inarticulate sounds or mutterings . . . they perceive a swimming in their heads; a dimness comes over their eyes; they turn pale; are scarce able to stand; their pulse is weak; they shut their eyes, fall down and remain senseless for some time." Blackmore (1725, p. 41), in his *Treatise of the Spleen and Vapours*, assigned their prime cause to laxity of fibres in one of the abdominal organs allowing "peccant juices" to percolate through to the blood and adulterate the animal spirits formed in the brain.

In popular speech, the word 'vapours' persisted long after the medical theories based on it had been discarded. Samuel Johnson, in his *Dictionary* of 1755, described the vapours as "diseases caused by flatulence or by diseased nerves"; and the term remained sufficiently common during the 19th century to demand an entry in Tuke's *Dictionary of Psychological Medicine* (1892) where it is described as "a popular term for hypochondriasis and hysteria".

The spleen

"The primitive doctors", wrote Blackmore in 1725 (p. 100), "imagined that all hypochondriacal symptoms were derived from a collection of black dregs and lees separated from the blood and lodged in the spleen; whence, as they supposed, noxious reeks and cloudy evaporations were always ascending to the superior regions". This Galenical view was still taken by Willis in 1667 (Mandeville, 1730), but from the early 18th century the part played by the spleen was being disputed on both anatomical and physiological grounds. Thus Blackmore said that primitive belief was now exploded because "there are no passages or proper conveyances by which these steams and exhalations may mount"; he noted that in dogs the spleen could be excised without ill effect, proving it was not a vital organ. Moreover, those who accepted the contemporary teaching of 'the spleen' and vapours being caused by laxity of the (muscle) fibres, said the spleen could not be the seat of these disorders because it contains no muscles.

Such arguments were no doubt the reason why medical writers soon ceased to mention 'the spleen' as a distinct disorder. But, as with the vapours, a term introduced to describe a causal theory and abandoned when the theory was shown to be untenable, lived on much longer in popular speech. In most medical writings of the 18th century the symptoms attributed to the spleen were those we now tend to associate with hypochondria and low spirits. Robinson (1729) lists eight groups of symptoms of the spleen in man. The symptoms include poor appetite, low spirits, belching, regurgitation, murmurings of the bowel (like 'caterwauling conflicts'), weakness and trembling of the legs, costiveness, slimy stools, thumping inside the skull, sweats, groundless fears of death, poor memory, fits of despair and disturbed sleep ("he starts in his sleep, and often awakes from his slumbers terribly affrighted with the horrors of his dreams"). The popular usage had a wider connotation – a fact which is noteworthy in the light of present-day theories. In dictionaries of the English language, 'spleen' has commonly included ideas of anger and cheerfulness as well as of melancholy. Thus in Dr Johnson's *Dictionary*, spleen may mean not only melancholy and hypochondriacal vapours but spite, ill-humour, a fit of anger, or immoderate merriment; and the organ itself "is supposed the seat of anger, melancholy and mirth". The *Oxford English Dictionary* (1971) gives essentially the same meaning. Two reasons may be suggested why medical writers had a restricted meaning for 'the spleen'. Anger or merriment would not ordinarily lead to a medical consultation; and it would not be easy to explain how a single physical cause could lead to such seemingly incompatible mental effects as melancholy and mirth. No discussion of the spleen in this period would be complete without reference to the well-written book on the subject by William Stukeley (1723). Stukeley took the view that one of the functions of the spleen was to purify the black humour conveyed to it by the splenic vein from the intestines.

But just as black bile creates anger and melancholy, so the spleen when purged of it is rendered "chearful and alert" (p. 2). Like Malphigi, Stukeley confessed himself perfectly ignorant of "nature's intention of forming the curious organ of the spleen" (p. 2). But that fact, he says, will not stop him from speculating about its functions "because the greatness of our profession permits everyone a free way of thinking".

Dyspepsia

As a medical term, the English word dyspepsia dates from 1657 but the belief that hypochondriacal disorders were related to indigestion is very old and was held by Aetius and Paul of Aegina (Gully, 1837). This belief was still fashionable during the 17th and 18th centuries. Thus Baglivi, in his *Practice of Physick* (1704, p. 186), said that "those who sicken upon disorder of the mind use chiefly to be seized with the diseases of the stomach". According to Purcell, the principal cause of vapours is indigestion, the turning of ailments into "crudities" by "vicious concoction". "By what I know from observation", says the physician in Mandeville's *Treatise* (p. 94), "it is demonstrable to me that the cause of hypochondriac and hysteric diseases is in the stomach". Buchan's popular *Domestic Medicine* (1769) asserts that "all nervous patients, without exception, are affected with wind or flatulences in the stomach and bowels", while Cullen, in the 1770s, defined hypochondria as "indigestion with langour, sadness and fear, from uncertain causes" (Johnson, 1827, p. 44).

These authors did not (as far as I can see) use the term 'dyspepsia'. The common use of that term dates only from the early 19th century. It was evidently coming into favour when Philip was writing his *Treatise on Indigestion* (1825), for he says he has preferred the use of 'indigestion' to 'dyspepsia' because the latter has been taken to mean a much less varied disease. Johnson (1827, part II, p. 41) asserted the primacy of the stomach as a cause of nervousness and hypochondria, but considered both 'indigestion' and 'dyspepsia' to be unsatisfactory terms, for in such cases (he believed) the digestive system was "morbidly sensitive" rather than disordered. This shift in opinion – from stomach disorder to some morbid abdominal state – is seen in Gully's book on nervousness (1837, p. 261) where he says that while it is true that "the starting point of the symptoms is invariably in the abdomen", the cause is not disorder of the digestive system but a morbid irritation of the ganglionic system of nerves. Interest in stomach disorder as a cause of hypochondria probably faded from lack of pathological evidence and also, perhaps, from a change in dietary habits rendering the abdominal symptoms less prominent in the clinical picture. But in the 1830s, a close relationship between dyspepsia, hypochondria and hysteria was still commonly maintained.

Hypochondria and hysteria

By the 1730s British physicians had come to accept that the spleen and the vapours were simply outdated terms for hypochondria and hysteria. But there was much debate about how far these were distinct disorders. The debate arose (we might now think) partly because of the dead-weight of tradition, partly because of the difficulty in delineating the characteristic symptoms, and partly because the symptoms seemed so variable. He gave three reasons why hysteria could not be caused by the uterus: hysteria may occur in virgins where the uterus is too small to be able to cause 'suffocation'; the uterus is bound down by ligaments and so could not rise up into the chest; and insofar as the uterus can move, this causes no sensation. As long as the uterus was considered the seat of hysteria, this was necessarily a female disorder. But both Willis (1681) and Sydenham (1749) asserted that it could occur in men; Willis's anatomical arguments strengthened that view. Trotter (1807, p. 188) says hysteria is characterised by "uneasy flutterings about the breast, with the sense of a ball rising to the throat"; the patient then becomes giddy and falls down, "often in violent agitations and convulsions, with loud screams and looks expressive of horror". The essential similarity between hysteria and hypochondria was maintained by Sydenham (1749), Blackmore (1725) and Browne (1729), and denied by Hoffman (see Sydenham, 1749), Whytt (1767), de Sauvages (see Veith, 1965) and Cullen (1810). There was no consensus here, and a student was likely to accept the opinion of his teachers.

There were two main reasons for thinking the disorders different. Hypochondria was typically a chronic, continuous state occurring mainly in persons over 45, while hysteria commonly took the form of isolated episodes, mainly in those under 35 (Cullen, 1810). Moreover, hysteria was particularly associated with 'fits'. Willis considered that hysteria "is chiefly and primarily convulsive" (1684, p.76); Hoffman (Sydenham, 1749, p. 368) said hysteria often seized women so suddenly that they "fall down directly without sense or motion"; Cheyne (1733) classed hysterical fits with epileptic fits and fits of yawning; and Cullen (1810) put hysteria with tetanus and epilepsy in his third group of nervous disorders, the 'spasmi'. The convulsive aspects of hysteria seem to have become less striking, and whatever the reason for this, the effect would have been to leave the symptoms more like those of hypochondria.

There was another difference between hysteria and hypochondria which, though little remarked at the time, is of interest for present-day ideas. Blackmore (1725, p. 154) observed that melancholy "is so nearly related to the spleen that it is called by some, hypochondriac melancholy" (many notes on hypochondriacal melancholy are given by Jackson (1986)); while in the type of hysteria characterised by tremblings and palpitations, there is "sometimes an immoderate gaity of temper". Robinson (1729), who did not see any distinction between the spleen and the vapours, says these disorders are liable to degenerate into madness - melancholy if the constitution was phlegmatic, mania if it was bilious. A hundred and fifty years later the same idea was expressed by Savage (1892) who wrote that "just as hysteria passes insensibly into mania, so hypochondriasis passes insensibly into forms of melancholia". The idea of excitability, particularly of sexual excitability, has been persistent in the history of hysteria. Cullen (1810, p. 153) said that hysteria "occurs especially in females who are liable to nymphomania" and his classification included the species *Hysterica libidinosa*. "We must protest", wrote Charcot on hysteria in Tuke's *Dictionary* (1892), "against the opinion universally adopted by the public that all hysterical women have a tendency to lubricity, almost bordering on nymphomania".

There was also the contrary view of hysterical females as sexually frigid. Harvey (see Hunter & Macalpine, 1963) had advised marriage as a cure for a hysterical woman, but Mandeville (1730) thought such advice might prove unfair to the prospective husband. I have found no observations on the sexual propensities of hysterical males.

Nervous disorders

The gradual consensus of opinion in the early decades of the 18th century - that there was no essential difference between the spleen, the vapours, hypochondria and hysteria - allowed the simplifying postulate that they could all be subsumed under the general term 'nervous disorders'. Although there was at first uncertainty how inclusive this term should be - Sydenham (1681, p. 383) had included the green-sickness (a type of anaemia) of young women as "doubtless a species of hysteric disorder" - it became restricted to disorders where no pathological abnormality could be found and which therefore, on the assumption that their cause lay in the body rather than the soul, were presumed due to a disorder of the nervous system. But their clinical identity remained confused and it was the opinion of many that the term nervous disorder was a rag-bag for conditions not classifiable elsewhere ("a common subterfuge for mere ignorance of the nature of distempers", said Cheyne (1733, p. 194)).

Medical writers before the 19th century rarely discussed the prevalence of the disorders they described. But when the nervous disorders became a single diagnostic group, their high prevalence was very evident. Sydenham (1749) thought that hysterical disorders (in which he included hypochondria) made up one-sixth of the diseases to which mankind was prone. Blackmore (1725, p. 367) said they were as common as fevers and that one-third of people "are destroyed or made miserable by them" (p. iv). "Scarce known to our ancestors", said Cheyne (p. 1), they are "computed to make almost one-third of the complaints of the people of condition in England". Trotter (1807, p. xvii), observing that "nervous disorders make up about two-thirds of the whole with which civilised society is infested", concluded that since Cheyne's time they must have been spreading to the inferior orders of society. And, as has commonly been the case when a disorder of unknown cause appears to be increasing in civilised countries, the effects of luxury, idleness, debauchery and town life were blamed.

The high prevalence of nervous disorders no doubt increased the urgency to find their bodily causes. If the cause lay in the peripheral nerves, then it was most likely to be a disorder of nervous conduction. Since Galen's time, nervous conduction had been explained in terms of animal spirits. These were thought to be formed in the brain by refinement of vital spirits brought there by the blood, and then distributed from the cerebral ventricles via the spinal cord to channels in the nerves (see note 2). This doctrine was accepted by Descartes (Mettler, 1947); and Willis (1681) did not doubt that hysterical symptoms "arise often from that the animal spirits . . . are infected with some taint". Purcell followed the mechanical explanations of Descartes and Willis when he attributed the vapours to pressure on the stomach nerves (from wind) causing reflux of animal spirits to the brain, whence they rebounded ("by the law of the angles of incidence and reflection") to cause unnatural stimulation of the stomach muscles.

The attempt to explain nervous conduction (and so nervous disorder) by flow of a liquid or gas failed only because the theory was realistic enough to allow its falsification by experiment. There were many objections to it (see note 3), but no satisfactory alternative could be found and there followed a period – roughly from the 1740s to the 1830s – when the cause of nervous disorders was still attributed to the nervous system but attention shifted from particular parts or functions to the more general idea of constitution or temperament. In this setting, the hypothesis of Lobstein (1823) that nervous disorders were due to disease of the sympathetic ganglia was a perfectly reasonable one. But it was to be the last outlier in the long range of attempts to find a localised cause (see note 4). By the time nervous conduction was shown to be associated with electric currents – in 1843 by Du Bois-Raymond (Brazier, 1958) – the hope of finding a specific cause of nervous disorders had largely been abandoned.

The nervous temperament

Most writers on 'nervous disorders' mention temperament or constitution as a predisposing factor. Thus Sydenham (1749, p. 376) considered the antecedent cause of hysteria to lie in "the temperament of the body . . . given us by nature"; and like Baglivi (1696, p.179), he attributed the greater incidence of hysteria in females to their having been "made more delicate". According to Blackmore (1725, p. 42) the predisposition to the spleen and vapours lay in "the original formation of the nerves . . . which in these patients are woven by nature of too delicate and tender threads"; and this is echoed by Browne (1729). The importance of constitution was more decidedly stressed by Whytt (1767, p. 95): "nervous disorders are chiefly those complaints which proceed, in a great measure, from a weak or unnatural constitution of the nerves". 'Weak nerves' might result either from a defect in constitution or from those diseases or irregular modes of life which "weaken the whole body, especially the nerves" (p. 109).

The gradually increasing emphasis on the importance of temperament culminates in Trotter's *View of the Nervous Temperament* (1807). Here, the peripheral nervous system is no longer discussed as a cause of nervous disorders. The bodily causes are to be looked for within the more vague concept of temperament. The predisposition to nervous disorders is the 'nervous temperament', and this might be inherited from nervous parents or acquired from such circumstances as malnourishment in infancy, fevers, head injuries, the injudicious use of drugs, or poisons. Nervous disorders will develop if there is further debilitation of the nervous system by a wrong life-style – overeating, alcoholism, insufficient exercise, etc. Trotter describes the mental characteristics of 'nervous persons' (i.e., those with the nervous temperament). These are mainly of a negative kind – "extravagant ideas, superstition, reverie" (p. 223); but may also be socially valuable – high sensibility, creative eccentricity.

Difficulties in the study of nervous disorders

Trotter's concept of nervous disorder as the effect of environmental insult on constitutional disposition may be seen as an end-point in the attempts by medical men, during the 200 years since Jorden's work, to bring order into a very confusing subject. If we reflect on the reasons why progress in the subject was so limited during this period, we may discern a series of inter-related difficulties.

The principal difficulty lay in delimiting the group of symptoms by which nervous disorders were to be recognised. There was little consistency in the clinical pictures – as Trotter (p. xv) said, "they vary in every constitution and assume in the same person at different times an inconstant assembly of symptoms". Symptoms and signs were commonly hard to describe in words and this made it hard for physicians to agree on the meaning of the medical terms.

Because of the problems of delineation, the differential diagnosis of nervous disorder – from serious organic disease to whims, fancies and conceits – was apt to be difficult. With the progress of clinical medicine and pathology a number of conditions originally included in the nervous group (such as epilepsies, chorea and migraine) became excluded, but these would have constituted only a small part. The distinction between nervous disorder and temperamental peculiarity was not only more subtle but involved the question whether nervous disorders were 'real' medical conditions requiring appropriate medicinal treatment. Robinson (1729, part II, ch. 2) devoted a chapter to the reality of the spleen and vapours, and to the "dangerous consequences that attend their neglect". Blackmore (1725), noting that hysterical symptoms may imitate many diseases – epileptic fits, paralytic numbness, asthma, rheumatism, putrid fevers – pointed to the danger of saying (p. 111), "Oh! this is nothing but vapours". And Heberden (1802, p. 235) was in no doubt that nervous disorders arose "from as real a cause as any other distemper". But the justification of such opinions lay in a demonstrable pathological lesion linked with the symptoms, or at least in a plausible hypothesis to explain the symptoms in pathological terms. The search for a lesion was doomed to failure – we still have not found one. Of the hypotheses, the most useful was that of disturbed animal spirits because it led to new findings based on investigations designed to test it. Scientific knowledge was generally insufficient to allow testable hypotheses, and as scientific rigour developed, the far-fetched analogies of the 17th century easily became the target of ridicule.

The failure to find a satisfying medical explanation of nervous disorders meant that there was no sound basis for rational therapy. This led to a distrust of 'hypothetical doctors'. To the busy practitioner, the purpose of medicine was to cure diseases: the search for knowledge was irrelevant (Mettler, 1947). The sceptical Stensen, who dismissed the idea of animal spirits and nervous fluid as mere words meaning nothing, said that rational treatments based on such ideas were "in most cases erroneous" (Foster, 1901, p. 285). Wise doctors like Harvey and Willis dropped their theories when treating patients (Veith, 1965).

The inability to demonstrate that nervous disorders were bodily in origin had two further consequences. The first was the confusing use of equivocal terms. Although the concept of animal spirits was very different from that of evil spirits, the word 'spirits' carried the double burden of a physical and a mental meaning: and this confusion led many into supposing that low spirits (in the 'mental' sense) could be raised by strengthening the spirits (in the 'animal' sense). The management of disorders caused by irregular motions of the animal spirits, said Sydenham (1681, para. 96, 116), included chalybeate ("whereby the drooping spirits are roused and revived") and riding on horseback ("for strengthening and cheering the spirits"); and Baglivi (1704, p. 77), observing that many diseases of the mind arise from the "weight of care that hangs upon everyone's shoulders", concluded that "the oppressed and almost sunk spirits ought to be rous'd up and exhilarated" (p. 180). For Descartes, animal spirits occupied an intermediate position between mind and matter (Riese, 1958) and this became a common view (see note 5). But with the fall of the animal spirit theory, the mind–body problem became as opaque as ever. "Our ignorance of the connection and sympathies of body and mind", said Heberden (1802, p. 225) re nervous disorder, "makes a great difficulty in the history of all distempers and particularly of this".

The second consequence was that if nervous disorders were not disorders of the body then they must be disorders of the mind. This allowed them to be explained in purely psychological terms. But if that were so, then medicaments and 'regime' were irrelevant: if improvement occurred, that would be due to the natural course of the disorder, and if it did not occur then the sufferer must accept his symptoms as philosophically as he could (Brain, 1963) (see note 6). Of course, it was easy for physicians to criticise animism – Vicq d'Azyr said of Stahl that he had invented an imaginary soul to resolve those phenomena which could not yet be explained by the laws of physics and chemistry (Brazier, 1958) – but that did not prove the bodily cause of nervous disorders or help the practitioner in his treatment of a nervous patient.

Nervous disorders today

The efforts of medical men during the period 1600–1840 to understand the nature of nervous disorders can be better appreciated if we consider what we know about them today. The term 'neurosis' was introduced by Cullen (1810) to include a wide range of disorders of the nervous system, but from the latter part of the 19th century its use became restricted to the functional complaints earlier subsumed under 'nervous disorders'. In common usage during the first half of the 20th century, 'neurosis' has now fallen from favour, and neither the term itself nor any correspondingly inclusive term finds a place in the influential classification of the American Psychiatric Association (the DSM–III system; 1980). Today, both 'neurosis' and 'nervous disorder' are popular rather than medical terms.

But the conditions themselves persist; patients still consult doctors for symptoms which cannot be attributed to any recognised disorder of demonstrable pathology. The principal change has been in the nature of the symptoms. Hypochondriasis and hysteria are rarely diagnosed today. In the DSM–III classification, hypochondriasis is a disorder of older persons and characterised by the patient's irrational fears of having some serious disease. The functional symptoms of what was called hysteria in the 17th century are now grouped under minor headings (conversion disorder, somatisation disorder, histrionic personality). The symptom of anxiety did not figure largely in 18th-century descriptions of nervous disorders but is now the characteristic of a major group, the 'anxiety disorders'. The low spirits and despondency so commonly noted in the 18th century as symptoms of hypochondria now find a place within 'affective disorders': the group which includes depressive and manic psychoses, and cyclothymic and dysthymic disorder.

From the clinical point of view there have been obvious changes in symptomatology. Dyspepsia is now rarely taken to be an indication of nervous troubles. The symptoms which used to be most typical of hysteria – the fits, the fainting, the sense of suffocation (globus hystericus) and the voiding of much pale urine (e.g. Sydenham, 1749; Blackmore, 1725) – are now quite uncommon in industrialised countries. It remains an open question how far such changes relate to changes in the social acceptability of different kinds of illness behaviour or to changes in diet, dress, general health, and environmental effects on constitution.

The essential symptoms of hypochondria, however, seem to have persisted largely unchanged, and in the old descriptions it is not difficult to recognise modern ideas of affective disorder and particularly of cyclothymia and dysthymia. It was well recognised in the 18th century that hypochondria might progress to melancholic or maniacal madness; and it is accepted by psychiatrists today that these two forms of psychosis are not only closely related, but typically occur in persons with constitutional cyclothymia (that is, swings of mood largely unrelated to external events). The old idea that the spleen was the site of melancholy and of merriment is now reconciled in the view that the cyclothymic person has phases of depression and elation (elation becoming 'hypomania' if sufficiently marked). The old concept of hysteria probably contained an element of cyclothymia – Heberden's (1802) "fits and excitability", and Cullen's (1810) "liability to nymphomania" (p. 15) – for sexual excitability is characteristic of hypomania in females.

The continued failure during the 19th century to find any bodily cause of 'nervous disorders' left the way open for new psychological theories, the most acclaimed of which was psychoanalysis. In Britain and America, from 1920, to about 1960, the aetiology of the neuroses was confidently attributed to unconscious mental conflicts. When medical confidence in these theories declined, environmental factors were again examined. Controlled studies have not, on the whole, supported the opinion that poor living standards or dissatisfaction with social conditions are important causes of neurotic illness, and the concept of constitutional vulnerability has again attracted attention.

If a person's constitution can be damaged by environmental insults in early childhood, we might suppose, from the great improvements in child health, that this factor would be much smaller now than in Trotter's time. Trotter's estimate, in 1807, that nervous disorders formed two-thirds of all disorders, might be compared with the prevalence rate of 10–15% found in a modern study (Shepherd *et al*, 1966) among general practitioners in London. But the comparison is hazardous, and it is the genetic aspect of constitution which at present seems most relevant. There is good evidence, especially from studies of twins and adopted children, that genetic factors are important in minor psychiatric disorders. The recent tentative location of genetic sites associated with manic-depressive psychoses gives hope that such sites may also exist, and be found, for the cyclothymic and dysthymic traits. That would at last be convincing evidence for a bodily cause in one class of nervous disorder, though it would still be only a step towards rational treatment and prevention.

Appendix

Note 1. At this time King James I was still a firm believer in witchcraft. His notorious *Demonology* had been published in 1597. But his opinions were to change, and he "grew first diffident of, and then flatly to deny, the workings of witches and devils as but falsehoods and delusions" (Walker, 1981). Yet the belief that possession could be induced by witchcraft remained common in Britain throughout the 17th century – it was accepted by Thomas Willis (Tourney, 1972).

Note 2. Vesalius accepted that animal spirits were distributed through the nerves "as through hollow channels" or "as light passes through the air" (Foster, 1901, p. 257), but he differed from Galen in holding that animal spirits were formed in the brain not only from the blood but also from air drawn up from the nose through holes in the cribriform plate (p. 256) – a misconception corrected by Lower (1672).

Note 3. Objections are listed by Mandeville (1730, p. 135), Cheyne (1733, p. 80), James (1745) and Whytt (1767, p. 6). If the contraction of a muscle was due to the sudden influx of animal spirits from the nerves, its volume should increase; but Glisson in 1677 showed the volume decreased (Mettler, 1947, p. 121). If a contracted muscle was cut under water, bubbles of gas should be released; but Borelli in 1680 disproved this (Brazier, 1958). Channels for the flow of spirits in the nerves should be visible, but even with Leeuwenhoek's lenses none could be seen; and if a nerve was tied and the proximal end milked, there should be a swelling; or if it was cut, fluid should ooze or bubble out; but this did not happen (James, 1745). And, as Stenson knew (Foster, 1901, p. 284), muscles could contract even when detached from their nerves. Haller had been a strong supporter of the animal spirits as flowing through tubes in the nerves (1779, p. 220), but "had candidly given up the opinion" on finding it unconfirmed by his experiments on living animals (Whytt, 1767, p. 68).

Note 4. Lobstein's hypothesis was reasonable because it was testable. It was accepted, although not confirmed, by Gully (1837), but does not seem to have received support from further pathological studies. Freud's somatic theory of anxiety neurosis – that it was due to pressure built up in the seminal vesicles from lack of sexual activity – was less easily testable. He soon dropped it in favour of a purely psychological theory.

Note 5. The physician in Mandeville's dialogue (1730, p. 165) remarks that the spirits are the internuncii between the immaterial thinking substance and those parts which are influenced by thinking. Alexander Monro (1753, p. 354) said, "We have not, and perhaps cannot have, any idea of the manner in how mind and body act upon each other," but if there is an interaction then this must be by the nervous fluid.

Note 6. Sydenham firmly believed that hysteria was to be cured by medicines – he used a series of remedies "until the patient responded" (Dewhurst, 1966, p. 53). For a physician to promise his patient a natural remission in the course of time was, he considered, something suggested by "malice of prejudiced persons" (p. 84). Could he have had in mind Gideon Harvey, physician to Charles II? In his *Art of Curing Diseases by Expectation* (1689), Harvey not only made the subversive remark that in serious diseases "more owe their deaths to physicians than are pretendedly cured by them" (p. 4), but pertinently asked how it was that poor people, unable to afford the fees of a doctor or apothecary, nevertheless commonly recovered from "slight disorders" (p. 3). The need for the patient to minister to himself in nervous disorder was stressed by Heberden – "much more is in his power than he is aware of, or can certainly be brought to believe" (1802, p. 235).

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The Founding of Psychiatric Nurse Training and its Aftermath

PETER W. NOLAN

The first national training scheme for attendants upon the insane began in 1891. The Medico-Psychological Association considered this initiative as essential if asylums were to have therapeutic credibility and recruit high-quality attendants. The initiative failed because poor pay and conditions of service were obstacles to recruitment and better standards of care. The Association then sought to integrate asylum and general nursing, leading to a double sense of betrayal on the part of the asylum nurses. They felt betrayed by the failure of the training scheme to improve their career structure and by the threat to their jobs posed by the proposed merger with general nurses. They responded by unionisation, so that two decades after the introduction of training, its only major effect had been to politicise nurses and engage them in disputes with their hospital superintendents and employing authorities. Training raised expectations in the attendants which neither the Association nor the institutions had intended to satisfy, and it was not seen by attendants as of benefit either to them or to patients.

In 1891, the first national training scheme for attendants* upon the insane was inaugurated under the auspices of the Medico-Psychological Association. Although this landmark has received some attention in the literature dealing with the history of psychiatry (Adams, 1969; Dingwall *et al*, 1988), there has been little discussion of the circumstances surrounding the introduction of the scheme. Merely to chronicle the events which led to the introduction of a training scheme is not to explain the complex interaction of the many forces which were operating on and within psychiatry during the second half of the 19th century. Important questions must be addressed if the full significance, and the strengths and limitations of the training scheme are to be understood. These questions include what the scheme hoped to achieve, and whether the newly trained attendants engaged in a different type or achieved a better quality of work than those who were not registered. Training may have been a response more to political and professional pressures than to the need to improve patient care.

Ideals of caring

The 19th century was one which espoused change, reform, and revolution through the power of ideas (Stern, 1978). It was recognised, on both sides of the Atlantic, that in order to provide a high standard of care for mentally disordered patients, attendants were needed who were both temperamentally suited to the work and sufficiently educated to enable them to carry out nursing duties for highly disturbed people. In 1850, the Sanitary Commissioners of the State of Massachusetts observed:

> "Bad nursing often defeats the intentions of the best medical advice and good nursing often supplies the defects of bad advice. Nursing often does more to cure disease than the physician himself; and in prevention of disease and in the promotion of health it is of equal and even greater importance." (Shattuck, 1948)

Such ideals of caring had formed the basis of various religious communities founded in England during the 1840s, communities such as the Protestant Sisters of Charity (founded by Elizabeth Fry in 1840), the Sisterhood of the Holy Cross (1845), the Sisterhood of Mercy of Devonport and Plymouth (1848) and the St John's House Training Institution for Nurses (1848). Members of these communities shared Christian beliefs and a wealth of skills in domestic management acquired from their upper-middle-class backgrounds (Summers, 1983). They combined efficient organisation of their institutions with attention to both the physical and spiritual welfare of their patients – a holistic approach.

Despite the undoubted pedigree of postulants to these communities, more secular attempts to improve the profile of mental nursing, to emphasise its demands and rewards, failed to attract people of the right calibre. When training was introduced at the end of the century, it was hoped that it would encourage a better quality of person to take up asylum nursing.

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*The term 'attendants' normally referred to males while the term 'nurses' referred to females. However, the generic term 'asylum nurses' is the one preferred by most authors.

Training and the attendants from the 18th century

The value of training had, however, been recognised many decades before. Various 18th-century madhouse-keepers, such as Dr Nathaniel Cotton, had devised their own training schemes. Dr Cotton attached great importance at his house in St Albans not only to the selection of good-quality 'servants' but also to instructing them in the importance of a calm and relaxing environment and of civility and humanity in dealings with patients.

Dr William Battie (1703–76) had argued that training might fulfil a twofold strategy: it would signify that the care of the mentally ill required special education, and that thereby it would attract 'gentlemen of the faculty' into nursing (Hunter, 1956). He contended that some patients responded more to the care they received from sensitive attendants than to the treatments they were prescribed, but found that the vast majority of attendants were ill-educated, lacked any humanitarian interest in nursing, and tended to leave within a year of being appointed (Russell, 1983).

The opening of the Retreat in York in 1796 witnessed the institutionalisation of moral management, a system of care which was dependent on high standards of behaviour from attendants. William Tuke, the Retreat's founder, did not intend it to be either an asylum or a hospital, having a marked distrust of the medical profession and its methods. Rather it was to be "A quiet haven in which the shattered bark might find the means of reparation or of safety" (Jones, 1972). Samuel Tuke and Pinel held similar beliefs (Wing, 1990) and both regarded the attendant as central to the provision of a humane service, in contrast to a system wherein "Insane unfortunates are chained in dungeons beside criminals and calm madmen are treated worse than malefactors" (Foucault, 1965).

George Jepson was the first head attendant at the Retreat and became the foremost practitioner of moral management in England in the early 19th century. Before his appointment in York, he had built a considerable reputation as a spiritual healer (Digby, 1985). Like Elizabeth Fry, he was a Quaker and he preferred all his staff to share his religious preferences. In his opinion, Quaker attendants stayed longer and displayed more loyalty to the institution than non-Quaker staff. Hunter (1956) has remarked that many of Jepson's humanitarian theories (which were reflected in such practices as Bible readings with both staff and patients, discussions on healthy living, and trips to the seaside) were later to be included in training curricula for attendants.

By 1827, it had become apparent that moral management at the Retreat could not be continued without broadening the workforce to include both non-Quakers and non-practising Christians (Digby, 1985). Elsewhere, asylums were experiencing difficulty in recruiting staff who needed anything less than continuous supervision, and were quite unable to attract the superior class of intelligent and industrious attendants advocated by Jepson. The superintendent of St Luke's asylum noted that just as psychiatry exaggerated what it could deliver, so attendants were being given responsibilities far beyond their capacities (Digby, 1985).

Nineteenth-century educational thinking

Towards the middle of the 19th century, education began to be recognised as a powerful means of social transformation. John Stuart Mill, Herbert Spencer and Thomas Huxley were putting the case for universal education as a means both of individual fulfilment, and of creating a disciplined workforce for the benefit of the new industries (Barnard, 1968). Attempts were made by various governments to forge and implement an educational strategy. These finally resulted in the Education Act 1870, which initiated a school-building programme and encouraged employers to contribute towards the establishment of 'institutes' where their employees could study in the evenings. The act recognised that a trained and educated workforce would improve productivity and enable Britain to compete effectively in the world. It was very much in line with this new thinking that, in 1871, Henry Maudsley attempted to persuade the asylum superintendents of the advantages of educated nurses and proposed to the Medico-Psychological Association that a register of 'good attendants' should be set up in order to improve the pool of nursing applicants (Adams, 1969). Nothing came of his proposals.

Education and the asylum

Many of the issues which interested the proponents of the education movement also motivated those who sought to change the asylum system. It was felt that patient care could be immensely improved if carers were to be better educated. Alexander Morrison, Consulting Physician to the Bethlem Hospital (1835–53), sought to humanise the mental institutions by educating doctors in an understanding of the processes of mental disease and in the principles of good care. He started lecturing doctors at the Bethlem Hospital in 1823 (Simpson, 1980) to be followed in 1842 by John Conolly at the Hanwell asylum and by Thomas Laycock in Edinburgh in the early 1860s. In 1885, the Medico-Psychological

Association obtained permission from the General Medical Council to introduce a Certificate in Psychological Medicine and a national training scheme for doctors. It was not until doctors began to be trained, that the training of attendants became a realistic possibility (Hunter, 1956).

Superintendents who devised training schemes for doctors were generally convinced of the importance of training for their attendants also. One of these was Dr W. A. F. Browne, of the Crichton Royal Hospital, Dumfries. In 1851, he started the first organised course for attendants, and his campaigning zeal inspired other superintendents (Simpson, 1980). His commitment was such that by October 1854 he was giving a course of 30 lectures annually on mental diseases and their management to both medical and nursing staff. The course made possible "a full, if popular, discussion of insanity in the different forms, intelligible by the shrewd and sensible, if somewhat illiterate class of persons employed as attendants and nurses," (Simpson, 1980).

Education and training in America

A frequent attender at the annual meetings of the Medico-Psychological Association was Dr Thomas Story Kirkbride of the Pennsylvania Hospital, who was responsible for the founding of several psychiatric hospitals in America. Their management was based on the non-restraint then being instituted in Europe. In 1843, Kirkbride introduced a course of instruction for attendants; he spoke repeatedly on both sides of the Atlantic in favour of training. In 1882, Miss Richards and Dr Cowles, Matron and Physician Superintendent, established the first School of Nursing in the world at McLean Hospital, and there pioneered formal training for carers of the mentally ill. In America, the training of nurses was seen as an essential part of the medicalisation of psychiatry (Church, 1987). In 1883, a second school was founded in Buffalo State Hospital in New York, and by 1899 there were 12 state hospitals in New York with schools of nursing attached. Kirkbride continued to report regularly at annual meetings of the Medico-Psychological Association on the effectiveness of trained nurses in enhancing psychiatric treatments.

The situation in Britain

By the beginning of the 1880s, there were still only a few training schemes of any consequence in British hospitals. Interest increased when evidence began to appear which suggested that training had a demonstrable effect on the outcome of psychiatric illness. In his Presidential Address to the Associatio of Mental Science in 1884, Dr H. Rayner observed

> "I have been so strongly impressed by the improvemen occurring in the most unhopeful cases as a result of th bestowal of special care, that I have come to regar the one [training] as having a direct relation to th other."

The importance attributed by the Medico-Psychological Association to this comment wa evident when it appointed, in the same year, subcommittee to prepare a handbook "in the hop of helping attendants of the insane to a due understanding of the work in which they are engaged" (Rollin, 1986). Eager to act on the new appreciation o the link between training attendants and satisfactor patient outcome, the committee worked with grea speed and published *The Handbook for the Instruction of Attendants on the Insane* in 1885.

Rollin (1986) stated that the *Handbook* had made a considerable contribution to psychiatric though and practice over the years. On publication of the seventh edition in 1923, it was renamed *The Handbook for Mental Nurses*. In April 1964, the ninth edition appeared under the editorship of Brian Ackner, who enlisted the help of acknowledged experts in its production. The *Handbook* had by now become a substantial text of 335 pages, with a suggested reading list and a glossary of terms. This particular edition was reprinted six times, the las being in June 1978. In 1979, the Education Committee of the Royal College of Psychiatrists decided that the book was out of date and that no further editions should be commissioned.

The *Handbook* listed courses already running for attendants and was thereby intended to act as a spur to superintendents not organising such courses. Its factual material was divided into five chapters under the headings:

1. The Body, its general functions and disorders
2. The Nursing of the Sick
3. Mind and its Disorders
4. The Care of the Insane
5. The General Duties of Attendants.

In 1886, Dr G. E. Shuttleworth, Superintendent of the Royal Albert asylum, Lancaster, started classes in first aid for the attendants based on the St John's ambulance scheme. Men and women were taught in separate classes and fees for the course were 2s for men and 1s 6d for women. Each pupil was advised to purchase Sherderd's *Manual of First Aid*, price 1s and an illustrated triangular bandage, price 1s 6d (Shuttleworth, 1886). The classes proved so popular that it became necessary to ensure that some ttendants remained on the wards in order to care or the patients! Much emphasis was placed on edical emergencies that nurses might encounter luring their work – suffocation, drowning, burns nd scalds. The matron helped supervise practical essions. Women attendants were assessed by a *viva oce* examination and a written paper; the men had lso an extended examination in ambulance drill. The utcome of the 1886 examination conducted by urgeon-Major Hutton of the St John's ambulance as that, of 15 men and 19 women who sat for it, ll but one woman passed. The undoubted success f the course was due to its content being directly elevant to the daily work of the nurses.

The eagerness with which the attendants set bout acquiring knowledge was also confirmed by Dr Hitchcock of the York asylum, who organised similar successful course of lectures:

> "I have been giving a course of lectures on elementary anatomy, physiology, and the immediate treatment of injuries and accidents, etc., to nurses and attendants at the asylum. I was much gratified by their regular attendance and the interest manifested in the subject: the more so that several, not specially engaged in attendance on the patients, were amongst my class; even some of the patients asked if they could attend, but I drew the line there. I shall not mind if the knowledge they gained is not tested by practice; but at all events the subject was right and necessary for them to be instructed in." (Hitchcock, 1886)

Successive attempts on the part of superintendents lready conducting courses for attendants and obbying of the Medico-Psychological Association on behalf of attendant training by other practitioners finally convinced sufficient members of the Association to agree in 1889 to the setting up of a national training scheme. The annual meeting unanimously approved the appointment of a special committee to report on:

(a) the systematic training of asylum nurses and attendants
(b) the award of a certificate in nursing the insane
(c) the registration of such qualifying nurses and attendants.

Table 1
Candidates obtaining the "Certificate of Proficiency in Nursing the Insane", May 1891

Asylum	No. of men	No. of women
Birmingham asylum	5	8
Rubery asylum	2	4
James Murray's Royal asylum, Perth	3	2
Kirklands asylum, Bothwell	1	2
Stirling district asylum, Larbert	4	4
Total	15	20

The committee worked rapidly. The first examination was held in May 1891 and the list of those awarded the Association's "Certificate of Proficiency in Nursing the Insane" was published in the *Journal of Mental Science* in October 1892. Table 1 shows the numbers of attendants who successfully undertook the examination and the asylum at which they were employed. It is noteworthy that the only two English asylums to prepare candidates for the first examination were both in Birmingham, while the rest were in Scotland. In November 1891, eight asylums presented candidates for the examination and 31 men and 40 women were successful. By May 1892, 15 asylums were participating in the scheme and in the examination of that year, 70 men and 77 women were successful. Between May 1891 and May 1898, 1234 men and 1418 women were awarded certificates, and by 1899 over 100 asylums were participating in the training scheme and nearly 600 certificates were being awarded each year. This expansion in training did not necessarily imply a widespread recognition of its importance, as it was still confined almost entirely to public asylums, with only a few private institutions being involved. Despite the increase in institutions providing training and in the number of trained personnel, dissatisfaction was simmering among both general and mental nursing staff.

Towards the end of the 19th century, general nurses who had undertaken training began to voice their disquiet that training had not been seen to improve their career opportunities. Their cause was taken up by Mrs Bedford Fenwick, friend of Florence Nightingale and matron of St Bartholomew's Hospital (1881–87). Together with a number of younger matrons, she sought to associate the nurses' grievances with the movement for women's suffrage (Dingwall *et al*, 1988). Her efforts resulted in the foundation of the British Nursing Association (BNA) in 1887, which soon gained a Royal Charter in 1893 (RBNA). Its aim was to win state recognition for trained nurses. Princess Christian of Schleswig Holstein, a daughter of Queen Victoria, became the Association's patron, and an executive council of matrons and doctors was set up. Among the doctors were some prominent psychiatrists and neurologists, notably Sir James Crichton-Browne, Sir Dyce Duckworth and Dr Thomas Outterson-Wood (Adams, 1969).

In 1895, Sir Dyce Duckworth successfully proposed to the RBNA that those who passed the Medico-Psychological Association's examination should be able to offer themselves for registration with the RBNA. Mrs Bedford Fenwick, who had not been present at the meeting, disapproved of the resolution as she explained in an editorial for the *Nursing Record*:

> "Everyone will agree that no person can be considered trained who has only worked in hospitals and asylums for the insane. The proposal recommends that the register of trained nurses is open to men as well as to women and considering the present class of persons known as male attendants, one can hardly believe that their admission will tend to raise the status of the Association, while we foresee considerable trouble for the executive council from such members." (Bedford Fenwick, 1896)

Mrs Bedford Fenwick's antipathy towards male nurses was echoed in America where, at McLean Hospital, Dr Cowles (physician superintendent) resisted the employment of men as nurses on the grounds that women had a natural capacity for nurturance and were therefore of greater service to patients.

Bedford Fenwick also suggested that workers in asylums could not properly be called nurses and that the Medico-Psychological Association's training scheme was inferior to that for general nurses. In conclusion, she urged all trained general nurses to protest against Sir Dyce Duckworth's motion. Such was her influence that those who had supported the registration of asylum nurses were not invited to further meetings of the RBNA. The hostility she harboured towards male nurses lasted until 1960, when the Royal College of Nursing, which superseded the RBNA in 1919, finally agreed to accept them as members.

When the attendants themselves heard about the motion passed on their behalf at the Association meeting, they were adamant that they did not want to be part of any registration scheme for general nurses. Recognising the need for an organisation to represent their own interests, they formed the Asylum Workers' Association in 1896. The following year, the first edition of *Asylum News* was published with an ironic acknowledgement to the RBNA for providing the spur which had brought the Association into existence.

The Asylum Workers' Association aimed to improve the status of asylum nurses. Whereas asylum doctors seemed keen to associate attendants with general nurses, presumably because they saw such an alliance as securing the respectability of psychiatry within medicine and likely to assist in the recruitment of a better class of nurse, the attendants were not inclined to any such affiliation because they feared that general trained nurses would take over their jobs. They felt that they had been tricked into training by the medical profession only so that qualified carers might improve the status of doctors. Now they considered that doctors were putting their livelihoods in jeopardy by attempting to bring them under the same umbrella as general nurses.

In fact, not all doctors were sympathetic towards the idea of having trained attendants. In America, some doctors expressed the fear that nurses could advance too quickly and so pose a threat to the medical profession and thus become a risk to patients. Dr Cowles reassured his colleagues that the training of nurses did not result in them being taught to write theses but to "aim at modest, quiet, unobtrusive devotion to honest work" (Church, 1987).

In a review of the *Handbook* in the *Journal of Mental Science* the anonymous reviewer questioned the whole basis of training. While acknowledging the importance of the attendants, he doubted the utility of instructing them in physiology, etc.:

> "We are not quite sure ourselves whether it is necessary or wise to attempt to convey instructions in physiology, etc., to ordinary attendants. Will they be better equipped for their duties for being told that the brain consists of grey and white matter and cement substance? We hardly see what is to be gained by a superficial knowledge of this kind." (*Journal of Mental Science*, 1885/86)

The implications were that training alone could not address the major difficulty of recruiting and retaining the right calibre of persons as attendants, and that there was a danger trained nurses might pose a threat to the power of doctors.

Indeed, merely training attendants could not at a stroke solve all the complex problems of the asylum system. In reviewing the years immediately before and after the turn of the century, the 45th report of the General Board of Commissioners in Lunacy for Scotland (1907) stated that training initiatives had fallen far short of meeting the needs for asylums. Training could not be effective until conditions within the institutions had changed. The report pinpointed problems which were highlighted in other reports of the same period:

(a) unsatisfactory turnover of staff (between 1900 and 1906, there was a 75% annual turnover of staff in Scottish hospitals)
(b) training not attracting good-quality attendants
(c) shortage of married staff
(d) shortage of comfortable accommodation
(e) over-harsh discipline
(f) poor conditions, pay and pension entitlements (for example, in comparison to prison officers).

Asylum nursing staff were understandably disappointed that their conditions of work and rates of pay did not improve on gaining their certificates. Nor were there brighter career prospects for qualified attendants. A further blow fell in 1909 with the introduction of the Asylum Officers' Act, which provided for at-source deductions from wages for pension schemes. The attendants viewed this arrangement as far less generous than the more flexible schemes hitherto adopted by many authorities under the clauses of the Lunacy Act 1890.

Growing dissatisfaction manifested itself when a group of Lancashire attendants formed a new pressure group in July 1910 – the Asylum Workers' Union. Membership of the Union spread quickly, and the *Asylum Workers' Union Journal* regularly contained complaints about long hours, poor working and living conditions, and systematic petty tyranny. The first strikes in the history of the English asylums took place on 4 and 5 September 1918, at Prestwich asylum (Manchester), where 200 staff were involved, at Whittingham (Preston), where there were 129, and at Winwick (Warrington), where the attendants stopped work for a period on one of the two days. Soon after, a five-day strike was triggered at Bodmin asylum when female employees were disciplined for wearing their Union badges. Further periods of disruption followed at Cheadle asylum (near Manchester) (1920), Lincoln asylum (1921), and Nottinghamshire County Mental Hospital (1922).

The unrest of the 1920s provoked frequent inquiries into conditions in the mental hospitals. Training had so little impact on the daily working lives of nurses that fewer and fewer could see any reason to undertake it. Disillusion was widespread. In 1920, at the Old Manor asylum in Salisbury, there were several trained nurses, but throughout the 1930s, there was only one. A nurse who came to work there in 1923 described what life was like:

> "On arrival, one received a sacking apron, soap, bucket, scrubbing brush and floor cloth. We were called at 6.00 a.m. to be on duty at 6.30. Fires had to be made up, hearths scrubbed, grates black-leaded, lavatories cleaned, all before 7.30. Then one half-hour for breakfast. Work until lunch time and another half-hour for this. Continue work until 5.00 p.m. for last meal; off duty at 8.00 p.m. Once a week, nurses worked until 10.30 p.m. to relieve the night staff. After one month, nurses were provided with uniforms and keys. They had one half day off each week from 1.00 p.m. and one evening from 5.00 p.m." (Smith, 1978)

Nursing work was still geared towards the upkeep of the institution, and to routines which were far form being patient-orientated. Forty years of training did not seem to have influenced the interactions between nurses and patients, both groups remaining subject to the authoritarian ethos of establishments run to suit interests other than their own.

Conclusion

When the Medico-Psychological Association introduced its national training scheme for attendants in 1891, it failed to issue any statement or give any guidance as to what the role of the trained as opposed to the untrained attendant should be. For the most part, training made no difference to the work carried out by attendants on the wards. Nor did it necessarily make an impact on the manner in which attendants conducted themselves towards patients; there were several instances of attendants who had only recently received their certificates being removed from their posts for abuse of patients. Lillian Ames from the Fife and Kinross district asylum, Cupar, was the first asylum nurse to be reported for "behaving roughly to one of the patients" at a meeting of the Association's Council on 17 November 1892. No action was taken because of insufficient evidence, but on average three mental nurses were removed from the Medico-Psychological Association's register and dismissed from their jobs each year.

The introduction of training was justified on the grounds that it would facilitate the recruitment of a steady supply of reliable asylum staff, who would remain in post and build up the prestige of the asylum service. The aim was not primarily, perhaps not even partly, to improve the quality of care for patients or the quality of life for the attendants. What training did achieve, quite unexpectedly as far as the doctors who had supported its introduction were concerned, was to raise the expectations of attendants, which led to unrest when they were not realised. Training did nothing to satisfy the needs of asylum staff for a career structure with its associated financial rewards. Attendants quickly became dissatisfied that training had to be undertaken in their own time and began to press for it to be included in normal working hours. Disillusion was further fuelled by the prospect of a merger between general and asylum nurses which might undermine the position of the latter. In the 20th century, several reports have addressed conditions for staff and patients in mental hospitals, but the evergreen problems of training and retaining nurses are still not resolved. 'Project 2000' is again attempting to bring all nurses under one umbrella with common core training preceding specialisation. Whether this not-so-new approach can satisfy the aspirations of psychiatric nurses remains to be seen.

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Twentieth-Century Influences on the Development in Britain of Services for Child and Adolescent Psychiatry

CHRISTOPHER J. WARDLE

Modern comprehensive multidisciplinary mental-health services for children and adolescents have four origins: psychology from 1890, psychoanalysis from 1906, the child-guidance movement from 1920, and the children's departments of psychiatric teaching hospitals from 1930. Post-war changes in society and reform, especially the NHS Act 1946, contributed to rapid development of services and an increasingly wide range of sophisticated therapeutic interventions; professional and interdisciplinary associations and trans-Atlantic exchange were also influential. In the last three decades a succession of official inquiries, reports, legislation and reorganisations have had a damaging effect. Children and their services have been prey to *causes célèbres*, fashion and the exaggerated fads and foibles of the media and politicians; they have thrived best when society and their carers were tolerant, and loving, sought good qualities to augment, not evil to exorcise, and succeeded in balancing structure and control with flexibility and freedom to grow. Planners should review the past before acting.

Elsewhere I have reviewed the influences on the development of services up to the end of the 19th century (Wardle, 1991); in this paper I follow their development through the 20th century.

By the end of the 19th century the components for a comprehensive assessment and advice service were o be found in the Western world, albeit scattered. In Britain, apart from Clouston's interest in adolescents, child psychiatric services had not been considered at all, although the possibilities had been heralded enthusiastically by a Scottish medical student at a meeting of the Medico-Psychological Association in 1859 (Crichton-Browne, 1860). Following West's (1848) influence at Great Ormond Street, a few physicians specialising in children's diseases had an nterest in the 'nervous child', the title of Hector Cameron's classic work on the subject (1918).

Children with severe psychiatric disorder would be seen by doctors from lunatic or idiot asylums, and school medical officers were appointed to assess children with difficulties. Sully (1895) had set up 'child study centres' in London and other large cities. A young person suffering from school phobia however, would be regarded as physically ill, wayward, wicked or stupid. Original sin and masturbation had replaced witchcraft and possession was explanations of behaviour problems. Tough mindedness prevailed in the management of children, particularly boys, unless they were seen as delicate or ill, so troubled illness behaviour must have been a common escape route. Physicians met this need with confident diagnoses of 'chlorosis', 'acidosis', 'growing pains', 'neurasthenia', and 'weak chest', prescribing strong purgatives, cod-liver oil, and unpleasant-tasting medicine or, if the child was lucky, fresh air.

Residential care for a pauper would be provided in an idiot or lunatic asylum, a workhouse, a reformatory, or an industrial school. A few lucky disturbed boys got to Alexander Devine's school at Mitcham, which Bridgeland (1971) considered "gave some idea what could be done for disturbed boys by sympathy and imagination".

Some quotations from a report recommending strategy for development of a district service (Wardle, 1989) indicate the prodigious changes which have taken place in the last 90 years. (Dates of first origins of concepts and names of originators are, where possible, given in square brackets.)

> "Child and adolescent psychiatric services should be concerned with cognitive, emotional, behavioural, and relationship development, from birth to late adolescence, and with problems and dysfunction in that development. They should be concerned with prevention, and assessment of problems, with providing treatment for the individual and/or his family and providing a consultation and support service to other agencies concerned with children."
>
> "The service must be able to offer genuinely comprehensive assessment of all the factors which can lead to maladaptive behaviour and disturbed family relationships. They include pathological, biological, social, psychological, behavioural, and educational factors and individual and family dynamics. Comprehensive assessment and treatment usually require the expertise of more than one profession and to be effective the team must include experts in Child and Adolescent Psychiatry [Kanner, 1935], Psychiatric Social work [Meyer, 1909], Educational Psychology [Burt, 1913], Clinical Psychology

> (c. 1950 for child psychiatry), Family Therapy [Groves & Groves, 1946; Dreikurs, 1949], Child Psychotherapy [Hug-Helmutt, 1913], Group therapy [Adler, 1907; Slavson, 1943], Behaviour Therapy [Jones, 1924; Watson, 1925; Skinner, 1959], Occupational Therapy [1949], and Community [c. 1892 for child psychiatry] and Residential Nursing [1947 for adolescent, 1948 for child psychiatry in UK]."
>
> "The full service must be available to all the population at risk [NHS Act 1946]. Site of delivery will be determined by balancing this aim with the District Health Authority's aim of delivering services as near the patient's home as possible."

Present-day services reflect major social changes; they could not work in a paternalistic and hierarchical society, like that of 1900, in which everyone was assigned a clearly defined 'place' which they 'knew' and 'kept', a social attitude which prevailed up to World War II.

Services developed from four origins from 1900 until the reforming social legislation at the end of World War II: educational psychology, the child-guidance movement, psychoanalysis, and the children's departments of psychiatric teaching hospitals. The development of educational psychology has been reviewed by Keir (1952). The first half of this paper traces the development of the other three. Until 1946, all services for child health, care and education were provided by county or city councils, or by private or charitable institutions. Only London County Council (LCC) and a few other large councils began providing child psychiatric services before the National Health Service Act was implemented in 1948.

Table 1
Development of psychiatric services for children, 1900–1950

Year	Innovators and Services
1896	Cattell starts multidisciplinary clinic with Witmer in the USA
1904	Binet & Simon publish intelligence test
1906	Meyer introduces a PSW at Manhattan Hospital
1909	Healey opens multidisciplinary clinic for delinquents, USA
1909	Beers forms National Committee for Mental Hygiene, USA
1913	Burt is first educational psychologist to the LCC
1917	Healey & Bronner open Judge Baker Guidance Centre, USA
1918	Smith College opens school of social work, USA
1920	Tavistock Clinic's first child patient
1921	Thom opens Boston Habit Clinic, USA
1923	15 demonstration child-guidance clinics in USA
1923	Mapother encouraged child clinic at Maudsley
1925	Mrs Strachey visits US child-guidance clinic, reads Burt's book and contacts him
1926	Child Guidance Council's fact-finding visits
1927	Miller opens East London child-guidance clinic, set up by Jewish Health Board
1928	Lowenfeld starts play-therapy clinic
1929	Moodie opens a child-guidance clinic in London for training and demonstration
1929	London School of Economics starts first mental health course
1930	Meyer initiates Kanner's research at Johns Hopkins
1930	Klopp opens an in-patient unit to meet demand on adult beds, USA
1931	Bradley opens a neuropsychiatric unit for children, USA
1932	Creak studies comprehensive child psychiatry units in the USA
1932	Child-guidance clinic opens in Birmingham
1933	Creak opens Maudsley children's department
1935	Kanner publishes textbook of child psychiatry
1938	Cameron trains with Kanner
1939	Feversham report comments on child-guidance clinics and child psychiatry facilities
1944	Education Act defines 'maladjusted child'
1946	NHS Act
1946	Blacker recommends the setting up of 400 psychologist-led child-guidance clinics and 150 hospital-based child psychiatric teams
1947	Cameron opens the Maudsley in-patient unit for children
1947	The Ministry of Health instructs RHBs to provide in- and out-patient services for child psychiatry
1947	Sands opens adolescent unit at Epsom
1948	The Ministry of Education (circular 179) involves child psychiatrists in assessment of maladjusted children
1949	Warren opens an adolescent unit at Bethlem Royal Hospital
1950	Underwood appointed chairman of Committee on Maladjusted children

Beginnings in Britain

There was little service development or innovation until about 1925 (Table 1). The following events were of significance. In 1913, Cyril Burt, who had trained with Sully and McDougall, was appointed educational psychologist to the LCC, despite opposition by the medical representatives to non-medical psychologists (Keir, 1952). Also in 1913, Homer Lane was invited by Lord Sandwich to advise how the principles of the 'Little Republics' for juvenile delinquents, so successful in the USA, might be applied in Britain (Bridgeland, 1971). His 'Little Commonwealth' at Cerne Abbas was the inspiration and model for the therapeutic group work with children and adolescents which was developed in the next two decades in liberal schools and therapeutic communities, and in child and adolescent units and hostels up to the present (Wardle, 1974, 1989; Jensen, 1980; Kennard, 1983). They failed to influence social-service and Home Office provision, where custodial and rigid behavioural systems have persisted with a deleterious effect on their success (Milham *et al*, 1981). A. S. Neill described, with admiration, Homer Lane's success with tough delinquent boys and girls from the London courts, in a community where they found self-government, loving approval, trust, and the freedom to be themselves. He noted the contrast with the official provision at that time and since (Neill, 1962). Dr Marjorie Franklin, a psychiatrist, recognising the effect of their milieu on psychiatric patients, set up 'Quest' camps on these principles for delinquent youths, under the leadership of David Wills, a Quaker (Kennard, 1983).

Long before behaviour modification and family therapy, Lane, Wills and Neill achieved success with severely disturbed and delinquent young people by seeking 'good' motives in disturbed behaviour and by using paradoxical injunctions and positive reframing with humour and compassion.

Unhappily, Lane tried to apply analytic psychotherapy to delinquent girls in his care; transference problems led to accusations of improper behaviour and the withdrawal of support and funds from his project. This was an ever-present danger in residential work of this kind, and it alarmed the establishment and fuelled unreasoning antipathy to the whole approach. Bettelheim's *Love is not Enough* (1950), emphasising that children need structure and control as well as love and freedom to grow, was a helpful counter to careless, over-permissive interpretations of these methods.

British doctors had been visiting Vienna to learn psychoanalysis before World War I; in 1920 Dr Crichton Miller opened the Institute of Medical Psychology (later renamed the Tavistock Clinic). The first patient was a child and a department for children and families followed which was to have great influence (Howells, 1965).

In 1922, Margaret Lowenfeldt, a paediatrician, began using play as a means to improve her contact with children and achieve a better understanding of their inner life. In 1923, Mapother opened the Maudsley Hospital to children; Dr Dawson ran these early clinics with the help of a hospital almoner (Warren, 1974).

The development of the child-guidance movement and team concept

In 1895, soon after immigrating to the US, Adolf Meyer contributed articles on mental abnormalities in children to the Society for Child Study, which the psychologist Stanley Hall had founded (Crutcher, 1943). Meyer believed that mental-health services should reach out into the community, and he emphasised preventive psychiatry, recommending the need for psychiatric social services and that psychiatrists specialising in child psychology should be attached to schools (Meyer, 1909).

In 1909, encouraged by Adolf Meyer, Healey, who had worked with Cattell and Witmer, applied a team approach in the Chicago Juvenile Psychopathic Unit. In 1917 Healey and Bronner, a psychologist, opened the Judge Baker Child Guidance Clinic, which was unique in its time; no such facility existed in Britain. In 1921, Thom set up the Boston habit clinic for children aged 2–8 years (Kanner, 1955). The success of these clinics led, in 1922, to demonstration clinics being set up throughout the US by the Commonwealth Fund, in consultation with the National Council For Mental Health (started by Clifford Beers in 1909, and encouraged by Meyer).

A visit to these American clinics in 1925 so impressed Mrs Strachey, a London magistrate, that she formed an interest group to set up similar clinics in Britain. Burt had just published *The Young Delinquent* (1925), in which he proposed clinics, so Mrs Strachey invited him to participate, indicating that she thought she and her husband (the editor of *The Spectator*) could enlist the support of Mr Harkness, the benefactor of the Commonwealth Fund. Sir Percy Nunn, who also participated, widened the concept of the clinics, saying:

> "every child at some stage or other may need guidance; and as often as not we shall be concerned with guidance for the teacher or parent . . . above all it must be realised that the clinic will be educational and social more frequently than medical or clinical in the strict sense." (Keir, 1952)

The Commonwealth Fund agreed to fund a demonstration clinic, on condition that it was administered by a multiprofessional group. In 1927, the Child Guidance Council was set up, chaired by Cyril Burt. A fact-finding group sent to the US was followed by five social workers being sent there to train in child-guidance methods, and in 1929, the London Child Guidance Clinic (now the Child Guidance Training Centre) opened in Canonbury, as the 'demonstration' and training clinic for psychiatrists, psychologists, and social workers to work as a team using the American child-guidance methods.

The use of a fact-finding group was probably crucial to the speed and success of this endeavour and the way it developed. It included key officers of the LCC, two Maudsley psychiatrists (Dr William Moodie, who had trained in the child-guidance method in the US and became first Medical Director, and Dr Evelyn Lucas, who had taken over the Maudsley children's clinic), the Chief Medical Officer of the Ministry of Education, the almoner from Great Ormond Street Hospital, and a Cambridge psychologist, Miss Lucy Fildes. Five of the professionals were women.

The East London Child Guidance Clinic had been set up quite independently by the Jewish Health Board in 1927, with Dr Emanuel Miller as Medical Director. He was particularly interested in working with family processes (Miller, 1968).

In 1928 Dr Margaret Lowenfeld continued her development of play therapy by establishing a free children's centre manned by volunteers, which later became the Institute of Child Psychology (Traill, 1974). Child-guidance workers soon recognised the value of Lowenfeld's techniques for making direct contact with the thoughts, feelings and desires of children, particularly her 'world technique', and adapted them; very soon no child-guidance clinic was without its sand tray and dolls' house.

By 1937, 46 clinics were recognised by the Child Guidance Council, although 18 were only partly staffed and only 15 had fully paid staff, the others relying on volunteers. By 1944 there were 95 clinics (Howells, 1965). The only paid doctors in these clinics were those employed by the county medical officers of health; the rest were honorary appointments until the NHS Act was implemented in 1948.

Psychiatric social work

Central to the child-guidance movement was the tripartite team of psychiatrist, psychologist and psychiatric social worker: the growth of child psychiatry and psychology is discussed below and in other reviews (Brett, 1921; Crutcher, 1943; Murphy, 1949; Keir, 1952; Kanner, 1955, 1959; Howells, 1965; Warren, 1971; Parry-Jones, 1989). The development of the concept of psychiatric social worker (PSW) has not been reviewed and deserves mention.

Adolf Meyer (1909) coined the term, and the first PSW was appointed to the Manhattan State Hospital, through his influence, in 1906. Their widespread use in mental hospitals and clinics followed from Healey's successful work in Chicago (Crutcher, 1943). Courses in mental hygiene began in 1917 at the New York School of Social Work and in 1918 at Smith College School for Social Work (Deutsch, 1937).

There were almoners in most large British hospitals, whose official function was to disburse charity and help to poor patients. The ten 'social workers' recruited by the Child Guidance Council to train as the first psychiatric social workers in 1927/28 and 1928/29 are likely to have been well educated gentlewomen, like many almoners, with no special training. They learnt child-guidance methods at the New York School of Social Work and with Dr Marion Kenworthy at the Institute of Children's Guidance. On their return, the first mental-health training course for social workers, at the London School of Economics, was started in 1929. Until 1939, student PSWs were sent for practical experience to the Child Guidance Training Centre or to the Maudsley Hospital children' department.

The PSW in these early clinics was a collector o data, a mediator and link between home and clinic and carrier of the clinic's recommendations to schools, social agencies, and courts. Attempt to change parental attitudes and behaviour to thei children followed recognition of their causal significance. Successively, warnings, cajoling and advice were discarded as ineffectual and it became recognised that mothers needed to work out solutions with a therapist. Training for this task was introduced to the mental-health courses and the PSW with therapeutic skills was born (Kanner, 1955).

Good liaison work proved essential to prevent clinics becoming isolated from, and misunderstood by, the community they served. PSWs educated the public and other agencies, fed back the realities of patients' lives to the other team members, and, in many clinics, maintained the continuity and integration of the clinical work and of the team, because most psychologists and psychiatrists had other commitments.

Development of children's departments in teaching psychiatric hospitals

In 1930, the psychobiological approach (Meyer, 1935) was applied at the Harriet Lane home for children (attached to the Johns Hopkins University), where Meyer initiated Kanner's study of psychiatric disorder in childhood (Kanner, 1935). This study was to establish the pattern of hospital child psychiatry; its emphasis on painstaking appraisal of psychological, social and biological factors led to present-day interactional holistic models for understanding and solving psychiatric problems in children and families. Kanner's textbook (1935) became the benchbook of British child psychiatrists until Rutter & Hersov published theirs in 1976, which went to a second edition in 1985.

In 1930, Dr Mildred Creak took charge of child psychiatry at the Maudsley Hospital and established a play-group room and invited teachers and others to her weekly case conferences. Her service was recognised by the Child Guidance Council (which helped with finance from the Commonwealth Fund and by loaning staff), and by the Education Committee of the LCC, which recognised her unit as a 'school clinic', and accepted her recommendations.

In 1932/33, Dr Creak studied comprehensive children's units which provided both out-patient and a non-custodial in-patient treatment regime in the US. These included those set up by Klopp in Allentown (Klopp, 1932), Potter in New York

Potter, 1934), and the neuropsychiatric unit for children on Rhode Island, where Bradley discovered he apparently paradoxical effects of phenobarbitone and amphetamine on the behaviour of children with cerebral pathology (Bradley, 1936). On her return, a new-purpose built comprehensive children's department was planned which opened to out-patients in 1939, only to be evacuated to Mill Hill for the duration of the war. The in-patient unit intended to serve London stayed empty during the war, and the first in-patient unit in Britain was set up by Dr Mildred Creak in the evacuated Mount Girls' School at Mill Hill instead. The Maudsley in-patient unit finally opened in January 1947; mistakes were made, but it was useful as a prototype. Kenneth Cameron, appointed by the LCC to direct the department, found it arduous and time consuming (Cameron, 1949). At first the doctors and nurses "coped unaided with the children's exacting demands". An occupational therapist (one hour a day at first) proved an important innovation. The Ministry of Education agreed to provide a school in 1950, as an experiment (Warren, 1974). Kenneth Cameron's Rockefeller Fellowship to work with Kanner at the Johns Hopkins Hospital moulded his broad approach to the problems of psychiatrically disturbed children (Warren, 1963), which he passed on to the post-war trainees at the Maudsley Hospital, who in turn were to create new services and training schemes throughout the UK.

Development of child psychoanalysis and psychodynamics

Psychodynamic thinking is particularly applicable to children, as it justifies psychological interventions in everyday life, and it extends both the scope and methods of assessment and treatment; it is now incorporated into every aspect of practice and used by all disciplines, often unwittingly.

Freud and Adler both developed theoretical frameworks, with lasting influence on thinking and practice (Table 2). Adler's (1907) observations, and emphasis on the importance of family interactions ('family constellation') on personality ('lifestyle' and 'inferiority complex') remain in current use. He is seen as the originator of both social psychiatric thinking and group therapy (Orgler, 1974). However, Adlerian psychotherapy itself does not seem to have spread into child psychiatry, in contrast to the proliferation of psychodynamic schools that followed Freud.

Child psychotherapy was heralded in 1906 by Freud's account of the treatment of phobia in a five-year-old boy. Freud assumed analysis of such young children was only possible through a parent, so he suggested interpretations to the father (himself analysed by Freud) who passed them on to 'Little Hans'. Hermine Hug-Helmuth, in 1913, was the first to combine direct analysis of children with work with parents (Brown, 1961). Melanie Klein, analysed and encouraged to work with children by Ferenczi and Abrahams, began developing techniques for children in 1921. She was invited to England by Ernest Jones, and she came in 1926; she published *The Psychoanalysis of Children* in 1932 (see Isaacs, 1961). Melanie Klein confined her work to play therapy with the child patient, however young (Crutcher, 1943): the co-operation of parents was not sought because their reports were regarded as distorted by their own unconscious conflicts and because she attached little significance to the reality of a situation (Brown, 1961).

Anna Freud came to England with her father in 1938. She had already published *The Ego and the Mechanisms of Defence* (Freud, 1937), in which she credited more importance to the conscious mind than had previous psychoanalysts. She was more pragmatic and adaptable than most analysts to the realities

Table 2
The evolution of therapeutic interventions

Year	Innovator	Clinical orientation
1907	Adler	Dynamic, group
1909	Sigmund Freud	Dynamic
1913	Hug-Helmuth	Dynamic
1916	Lane	Residential, group
1924	Jones	Behavioural
1925	Watson	Behavioural
1927	Miller	Family, teamwork, liaison
1928	Anna Freud	Dynamic, teamwork, liaison
1928	Lowenfeld	Play
1929	Moodie	Teamwork, liaison
1932	Klein	Dynamic
1932	Creak	Teamwork, liaison
1935	Aichorn	Dynamic
1938	Mowrer	Behavioural
1943	Slavson	Group
1951	Dreikurs	Family
1953	Howells	Play, family
1953	Moreno	Dynamic, group
1959	Skinner	Behavioural
1961	Berne	Dynamic, group
1963	Haley	Family
1964	Kahn	Teamwork, liaison
1967	Minuchin	Family
1967	Argyle	Social skills
1969	Bandura	Behavioural
1976	Berg	Teamwork, liaison
1978	Trower	Social skills
1978	Palozzoli	Family
1978	Bentovim	Family
1981	Kolvin	Group, teamwork, liaison

of work in the ordinary community, and she worked in co-operation with parents and teachers. *The Psychoanalytic Treatment of Children* was published in 1946.

The first training course in child psychotherapy was offered by Dr Margaret Lowenfeld in 1933 at her Institute of Child Psychology, followed by Anna Freud's Hampstead Child Therapy Course in 1947. The Tavistock Clinic, which had become the centre of teaching, research and innovation of psychodynamic ideas, was incorporated into the NHS in 1948. The Department for Children and Parents and its director, John Bowlby (until 1968), have had a considerable effect on practice and service provision, in particular by influencing thinking about child development and group, family and staff relationships. Bowlby's research and writing on maternal deprivation and separation (1951) are still influencing child care.

Psychoanalysis had a major influence on assessment and treatment in the US. By 1950 the use of projective methods was well established. Kanner (1955) found 1219 references to the Rorschach test which, with the Thematic Apperception test (Morgan & Murray, 1935), was the forerunner of a genre; there were over 800 tests by 1953. Play, creative activity, and the use of dolls and puppets had replaced direct inquiry in interviews with children because in skilled hands they were so much more effective. Numerous techniques were available, differing in the type and amount of structure, permissiveness, interpretation, and direction given by the play therapist (Kanner, 1955).

Slavson (1943, 1950) pioneered group therapy with children. He demonstrated the therapeutic power of well selected groups using analytic understanding, without interpretations, in 'activity groups' for children, and 'child-centred guidance groups' for parents. His theories had the merit of clarity and simplicity.

Moreno's original conception of drama therapy (Warnock, 1978), although rarely practised with children in its pure form, has catalysed the development of all kinds of useful techniques.

Post-war developments

The end of the war was a time of rapid and exciting social reform; the Education Act 1944 and the NHS Act 1946 had important effects on the development of psychiatric services for the young.

The Education Act defined a new group ('maladjusted children') as being in need of special educational provision, recommending that psychiatrists should be responsible for assessing them. This led local authorities to ask the new regional hospital boards (RHBs) to provide more psychiatrists for child-guidance clinics (Warren, 1971). In 1947, the Ministry of Health instructed RHBs to provide and develop "medical services for children suffering from mental illness and maladjustment. In patient accommodation will be required" (Howells, 1965). Finance became available in 1948.

Table 3 illustrates the growth in resources and manpower which followed. Developments in the post-war years were not confined to increases in buildings and staff; this was an active period of research, of professional training, and of development of new

Table 3
Changes in provision of services in Britain to 1990

Date		Source
1937	46 CGCs approved by Child Guidance Council, no IPUs	Howells (1965)
1944	95 CGCs approved by Child Guidance Council, one IPU with 12 beds for children	Howells (1965) Warren (1974)
1950	162 CGCs in England and Wales, 3 IPUs, 2 for adolescents	Warnock (1978) Warren (1974)
1951	8 senior-registrar posts,, 5 in London, 39 child psychiatrists employed by RHBs, 56 full-time psychiatrists employed by local authorities	RMPA (1955) Underwood (1955) Underwood (1955)
1953	68 consultants, 18 senior house medical officers, and 13 ungraded posts	RMPA (1960)
1956	64 hospital-based child psychiatric clinics, 237 beds for children, 86 for adolescents	Howells (1965) Howells (1981/2)
1957	11 IPUs, with 311 beds	RMPA (1957)
1961	102 hospital-based clinics, first day unit reported	Howells (1965) Connell (1961)
1962	4500 children in schools for the maladjusted	Warnock (1978)
1970	367 CGCs in England and Wales, 50 IPUs, 17 with day places, 2 day-only units, 821 nurses care for 990 in-patients and 169 day patients	Warnock (1978) Wardle (1970)
1973	13 364 pupils in schools for the maladjusted	Warnock (1978)
1974	212 (180 WTE) consultants in England and Wales, 65 (61 WTE) senior-registrar posts, 66 IPUs in England and Wales, 19 specially for adolescents	Department of Health and Social Security (1974) Department of Health and Social Security (1974) Barker (1974)
1986	365 consultants in England and Wales, 76 held distinction awards	*Health Trends* (1987)
1990	158 trainees in 32 training schemes in UK and Eire, 119 full-time senior registrars (25 part-time), 14 lecturers	Reder (1990)

CGC, child-guidance clinic; IPU, in-patient unit; WTE, whole-time equivalents; RHB, regional hospital board
Note: The criteria used differ between sources.

clinical skills and therapeutic techniques, which Hersov (1986) has reviewed in detail.

These advances were not accompanied by universal interdisciplinary accord and collaboration. The history of the conflicts and the reports and memoranda written to solve them has been reviewed (Keir, 1952; Howells, 1965, 1980/81; Warren, 1971; Hersov, 1986; Black, 1987). Political and organisational solutions have often made matters worse (Wardle, 1989).

The good results of multidisciplinary work have been taken for granted (Underwood, 1955; Seebohm, 1968; Court, 1976; Warnock, 1978; Health Advisory Service, 1986) and so have not been tested by research (Wardle, 1989); they have been challenged as being too expensive (Keir, 1952; Tizard, 1973) and as inappropriate to problems other than delinquency (Levy, 1951). Lord Justice Butler-Sloss' report (1988) is the latest of many to provide evidence of the disastrous consequences for children and families of bad teamwork, rivalry and lack of co-operation between disciplines.

Advances in the range of treatment available

Although they were excellent, the child-guidance methods had become stereotyped by the mid-1950s. Registrars at the Maudsley Hospital, however, were exposed to a stream of visitors and lecturers reporting wide-ranging innovations and were given freedom to try them. By 1957, group therapy, methods based on conditioning theory, and some psychotropic drugs were being used in the children's department.

The importance of family dynamics had become apparent to pioneers like Emmanuel Miller in the '20s (Hersov, 1986). In 1949, when John Howells opened his child and family clinic in Ipswich, he worked with the whole family network. His clinic offered in 1953 the first training course in occupational therapy with child psychiatric patients.

In 1960, John Elderkin Bell read a paper on "Recent advances in family therapy" (Bell, 1962) to the annual weekend conference of the child psychiatry section of the Royal Medico-Psychological Association (RMPA). This stimulated Robin Skynner and others to "try seeing families, simply to save time and get the whole diagnostic process over in an hour"; the beneficial changes, in some cases after only one or two sessions (Skynner, 1979), encouraged its rapid evolution and wide acceptance by all professionals working in the field. Its acceptance by the public would have been unlikely in the social climate of pre-war Britain. It was made possible in the 1960s by the major changes in social attitudes. Taboos were relaxed about keeping family problems private, not talking about each other in front of strangers, and not discussing anything in front of the children.

In the '70s, conferences and workshops on family therapy proliferated; perhaps the most influential were Minuchin's in London and Cardiff. A bewildering variety of professionals returned from them eager to apply their new-found skills (Hersov, 1986), sometimes with no further training or supervision, and some saw family therapy as a panacea.

In 1962 Rachman, noting how little success had been achieved by behaviour therapy with disturbed children compared with adults, predicted that more success would follow the recent advances in operant-conditioning procedures (Skinner, 1959), because children are usually helped more by building up adaptive behaviour than by having bad habits extinguished. By 1975, a large amount of literature described treatment of children based on these principles and on Bandura's (1969) modelling techniques (Yule, 1984). Unhappily, some of the protagonists of these useful techniques also viewed these as a panacea and denigrated other approaches, talking of 'Romantic psychiatry', and 'medical' or 'disease models', and curiously applying the latter epithet against psychoanalysis (e.g. Graziano, 1971).

The rapid development of new therapeutic interventions and their equally rapid incorporation into general child psychiatric practice between 1955 and 1975 was in part the result of paid study leave, which enabled the newly appointed young consultants and other health professionals to attend lectures and conferences organised by the associations listed in Table 5 where they were able to exchange experience and keep up with innovation.

Stereotyped approaches gave way to flexible case management with a wide range of treatment to choose from:

(a) an increase in therapeutic techniques involving the whole family
(b) brief focused methods of individual, group and family therapy
(c) use of a variety of behaviour-modification techniques
(d) greater selectivity in the use of medication (from a wider range)
(e) more psychiatric time spent on consultation with others rather than on direct contact with the child and family
(f) wider range of educational and psychiatric facilities for disturbed children, including hostels and day units
(g) recognition of the possibility that the effectiveness of institutions for children depends on their social organisation, and that behaviour

and other problems may respond to improved management, rather than focus on the individual child (Grahame, 1976).

In-patient and day units for children and adolescents

The appointment of consultants to every RHB in Britain during the 1950s and '60s led to the identification of large numbers of severely disturbed children who either could not be placed or who were inappropriately placed in punitive establishments, special schools, children's homes, hospitals for the subnormal, and adult psychiatric wards. The patients were suffering as a result, and so were their carers:

> "We had evidence that the presence of such children in the ordinary children's homes caused great disturbance and prevented the staff from doing their best with the other children." (Curtis, 1954)

This accounts for the apparently paradoxical opening of psychiatric in-patient units for children and adolescents at a time when child psychiatric teams were aware of the dangers of institutionalisation (Main, 1946; Barton, 1959; Jones, 1968) and parental separation (Bowlby, 1951).

Then, as now, some problems were so severe or impossible for lay carers that the only humane solution was to remove the sufferer to a sympathetic, supportive and understanding environment, with staff experienced and skilled in coping confidently with unusual and difficult behaviour. The aims of the new units were to provide rapid intensive assessment, a specific treatment programme for each patient in a therapeutic environment, with active rehabilitation home as soon as possible. An excellent account of the in-patient services in Britain was compiled by Barker (1974). Since then, child and adolescent in-patient units have provided invaluable experience of the group behaviour of children and adolescents, and the effect on this of the behaviour and interventions of the staff and the social environment they provide together. Shared experience and training has led to increasingly sophisticated use of milieu therapy, combining psychodynamic and behavioural techniques of management (Hersov & Bentovim, 1985). Increasing sophistication and skill in work with the family before considering admission and throughout the patient's stay has reduced the frequency of admission and duration of stay, as has the increasing availability of day provision. Most important has been a pre-admission group involving the patient, parents, hospital staff, and outside agencies, where the following were clearly defined: (a) the problems requiring solution and the purpose of admission, (b) the responsibilities of each of the participants during admission, (c) the minimum changes, in the identified patient, family and outside world, necessary for successful discharge, and (d) the alternatives to admission.

Ideas about admission procedure and management have evolved through practice and discussion at conferences. It has proved impossible to identify the origin of each component of the strategies outlined above. Some of those who have been influential are shown in Table 4.

Philip Connell was stimulated to develop a day hospital for children in Newcastle after working in the Maudsley day hospital with Felix Post. He will have been aware of Joshua Bierer's work started in 1946 (Bierer & Evans, 1969),

Table 4
Practitioners who have influenced the development of in-patient services for children and adolescents

Year	Innovators and services
1818	Warwick Asylum for Juveniles opened
1826	Voisin opens first in-patient unit for disturbed children
1840	Voisin and Seguin take medical and educational approach
1848	Conolly opens children's unit at Highgate
1856	Georgen uses Voisin's orthophrenic ideas
1883	Kahlbaum lectures on his pedagogical institution
1932	Klopp's first paper on a unit in the US
1934	Potter's 2 papers on treatment of problem children
1936	Bradley's first child neuropsychiatric unit
1939	Maudsley children's unit built but not occupied
1942	Creak opens wartime unit for children at Mill Hill
1946	Main's hospital opens as a therapeutic institution
1949	Cameron's first UK description of a unit for children
1950	Bettelheim's *Love Is Not Enough*
1951	RMPA's memorandum on accommodation
1952	Warren writes on treatment of adolescents
1952	Jones' *Social Psychiatry*
1953	Sands' description of early adolescent unit
1959	Barton's description of institutional neurosis
1960	Stroh trains staff
1960	Turle opens an adolescent unit
1961	Connell day hospital for children is opened
1964	Miller's *Growth to Freedom*
1964	Ministry of Health circular on accommodation
1965	Rogers' paper, "Children's inpatient units"
1966	Ounsted's work with epilepsy and behaviour
1966	Evans in-patient group therapy
1969	Allchin *Communication within a Community*
1969	Wardle's plenary group therapy
1971	Bruggen & Byng-Hall. Reason for admission as focus of work
1971	Milham's research on outcome and problems of residential care
1972	Abercrombie's parent–staff communication
1974	Barker reviews state of the art in treatment
1976	Court's report recommends more adolescent units
1982	Bruggen starts staff communications
1985	Health Advisory Service's report on adolescent services

and the felicitous arrangement at the Earls Court child-guidance clinic, where Dr Felix Brown's team included a trained teacher of the maladjusted, who ran a day 'tutorial class' there for the patients who could not cope with school.

At first, day units proliferated in association with in-patient units. In an unpublished survey of child psychiatrists' work in 1976, David Walk found 30% of consultants had access to day places, only 20% to in-patient beds.

Child-guidance clinics had been established to provide for schoolchildren when the age of compulsory schooling was 5–14. Successive rises of school-leaving age (to 15 in 1944 and 16 in 1973), coupled with progressively earlier puberty, brought into the clinics increasing numbers of adolescents with a new set of problems for the clinicians to solve. The first adolescent units, opened at Longrove in 1947 (Sands, 1953) and at Bethlem Royal Hospital in 1948, provided opportunities for the development of experience in this uncharted field, innovation, training and publications (Warren, 1952). By 1974 there were 15 adolescent units in the UK (Barker, 1974), and many children's units had raised their upper age limit to 16. The Hospital Advisory Service (1986) surveyed provision for adolescents, and supported the recommendations in *Fit for the Future* (Court, 1976) for more and improved services; since these reports, several adolescent units have lost the struggle for survival.

Modern technology, recording and research

Trainees at the Maudsley, in the mid-'50s, were expected to record historical and observational data on patients using a format which could later be typed. They could use punch-cards and hand-sort them with a needle to get statistical data. This tedious process could be shortened if they were lucky enough to gain access to the electrically driven mechanical calculating machine which could add, multiply and divide; each stage of the calculation had to be noted and re-entered into the machine for the next step.

There was one group room at the Maudsley with a one-way observation screen and tape recorder. A few centres used cinematography. The Robertson's superb films on the effects on children of parental separation were having considerable impact at professional meetings. As one of the few practical examples of preventive child psychiatry, they provided visual evidence to convince all but the most wilful paediatrician and child-care officer that they should modify their policies about admission and contact with parents. The more humane and thoughtful child-care policies which followed in the 1960s reduced the immediate distressing reactions to hospital admission (Vernon *et al*, 1965) and its long-term effects (Quinton & Rutter, 1984).

The tape recorder and the video camera have demonstrated the value of recording and feedback in family therapy and social-skills training, and in staff training. Immediate, non-judgemental feedback enabling the participants to see themselves in action has powerful impact and has speeded up the evolution of techniques involving interactions between people.

Aubrey Lewis, at the Institute of Psychiatry, was probably the first teacher to insist that all his trainees reviewed papers and undertook at least one piece of research. He initiated the Isle of Wight study (Rutter *et al*, 1976), which was the cornerstone of what is now a magnificent edifice of basic knowledge of the epidemiology, social psychiatry, and developmental psychopathology of child and adolescent psychiatric disorder. However, it would not be appropriate to single out particular research projects from the many emanating from the Institute of Psychiatry: their example has stimulated research throughout Britain. Studies of social and family factors underlying childhood disorder have helped clinicians to build more accurate models of the interaction of causes, enabling them to focus on attainable therapeutic aims and to look for positive and protective factors to work with in the child's environment and family (Rutter, 1986). The important comparative study of comprehensive schools, *Fifteen Thousand Hours* (Rutter *et al*, 1979) was of particular value in working with school staff.

Early to take the Maudsley innovations to provincial teaching centres were Professor Kolvin in Newcastle, Dr Ian Berg (Berg *et al*, 1976, 1978) in Leeds, and Dr Christopher Ounsted and Dr Ann Gath in Oxford. All produced research results of importance for practice and service provision. The first large-scale evaluation of alternative therapeutic interventions (Kolvin *et al*, 1981) confirmed the value of groups in schools with clinic-trained lay leaders.

Until Dr E. James Anthony was appointed senior lecturer in 1952, there were no academic posts in child psychiatry. Michael Rutter's appointment to the first Chair in Child Psychiatry in Britain was followed by four more chairs, and senior lectureships in most medical teaching centres. There is now a clinical tutor responsible for organising and stimulating research and teaching in every region.

What, how, and if a trainee was taught had depended, in the UK, on the whim and inclination of the consultant until 1973, when the Joint Committee on Higher Psychiatric Training took responsibility for overseeing child psychiatric training through an advisory subcommittee (Hersov, 1986). Their guidelines on standards, and regular inspection and approval visits have helped to raise standards of services, as well as training, throughout the NHS, by providing evidence which supports the clinical tutor in negotiations for staff and facilities.

Professional organisations

Local and national, formal and informal, associations, conferences, participant workshops and meetings of the societies and organisations (Table 5) have all had an influence in shaping child and adolescent psychiatric services. They have had less influence on political decisions about services through their committees, working parties, memoranda, evidence to committees of inquiry, and responses to governmental papers.

The National Association for Mental Health (successor to the Child Guidance Council) held its first Inter-clinic Conference at the London School of Economics in 1946, its last in 1965. The Association of Child Psychology and Psychiatry brought together those who were committed to scientific method as a means of promoting the psychological development of children (Berger & Taylor, 1986). In 1965 Drs Mary Capes and Bill Allchin held a conference at Southampton aimed at all those working with adolescents in in-patient settings, the first for psychiatric nurses and residential care staff. The enthusiastic participants elected a working party to organise more, which led to the birth, in 1969, of the Association for the Psychiatric Study of Adolescents (APSA). The interdisciplinary exchanges at the conferences arranged by these three associations have improved trust and co-operation between participants and led to better teamwork and imaginative new ideas for treatment and group management.

Table 5
Organisations influencing service development

Year	Organisation
1841	Royal Medical Psychological Association
1893	British Child Study Association
1913	National Council for Mental Health, US
1926	Child Guidance Council
1942	RMPA committee for child psychiatry
1944	National Council for Mental Health (later NAMH)
1946	RMPA Section of Child Psychiatry
1946	NAMH 1st Inter-Clinic Conference for staff of child-guidance clinics
1951	Association of Child Psychotherapists
1956	Association of Child Psychologists and Psychiatrists
1959	RMPA section of Child Psychiatry's 1st annual weekend conference
1969	Association for Psychiatric Study of Adolescents
1971	RMPA becomes Royal College of Psychiatrists
1973	Joint Committee on Higher Psychiatric Training, Child and Adolescent Psychiatry Subcommittee
1976	Association for Family Therapy
1977	Royal College of Psychiatry's Specialist Section of Child and Adolescent Psychiatry

Political influences

The first memoranda written by the RMPA child psychiatry section reflect the concerns of the time: "Training facilities for consultant status" (1951), "Maladjusted children" (1952), "In-patient accommodation for children and adolescent patients" (1956), and "The functions of the medical director of a child psychiatry (child guidance) clinic" (1961) (Howells, 1965). These themes have continued to the present. Since the committee for the child psychiatry section of the RMPA was first formed, there have been ten reports of royal commissions and committees of inquiry, four major reorganisations of health and social services, and five major acts of Parliament that have affected these services. The committee has

Table 6
Inquiries, reports and legislation which have affected the provision of child psychiatric services since 1950

Year	Report/legislation
1954	Curtis, report of the Committee on Children and Young Persons
1955	Underwood, report of the Committee on Maladjusted Children
1959	Ministry of Education, circular 347, and Ministry of Health, National Health Service HM (59) 23
1968	Summerfield, report of a working party on psychologists
1968	Seebohm, report of the Committee on Local Authority and Allied Personal Social Services
1972	National Health Service's reorganisation
1973	Department of Health and Social Security's discussion paper on child psychiatry services
1974	Reorganisation of the social services
1976	Court, report of the Committee on Child Health Services
1976	Brunel Institute's report, "Future organisation in child guidance and allied work"
1978	Department of Health and Social Security, "The Court report on child health services", HC5, which undermined Court's recommendations on child psychiatry
1978	Warnock, report of the Committee of Enquiry into the Education of Handicapped Children and Young People
1981	Education Act
1981	Reorganisation of health service on management lines
1984	Korner report on health services information
1986	Health Advisory Service's report on adolescent psychiatric services
1987	Lord Justice Butler-Sloss inquiry on management of sexual abuse
1989	Government white paper on reorganisation of the NHS
1991	Reorganisation of the NHS on commercial lines

submitted evidence before all these, and comments and memoranda after them, with varying success. Table 6 lists some of those that have affected child psychiatric services most.

Successive reorganisations of the NHS, local authorities and education and social services, whose main aim appears to have been to distract attention from chronic underfunding, have proved unhelpful. The political interpretation of the reports of royal commissions and committees of inquiry has more often compounded than solved the problems identified. The growth, after the NHS Act 1946, and the disintegration and shrinkage of services since 1981 suggests provision of integrated comprehensive child psychiatric services probably requires regional or national planning and budgeting. Most managers of district health authorities do not appreciate this.

The introduction of 'line management' exaggerated professional differences and withdrew able nurses and occupational therapists from the clinical work in which they had excelled, to unproductive 'administrator' and 'management' posts, in which they did not. The unhelpful management style forced all consultants to spend increasing time in unproductive and badly organised committees of only marginal relevance to their service, because they could no longer rely on the administrative staff to look after their interests. There must be some doubt about whether commercial attitudes to planning health services are compatible with providing a first-class progressive service for a client population who tend to be inarticulate and sometimes unattractive and unpopular.

In 1955, the Underwood report recommended a staffing ratio of one psychiatrist to two psychologists and three PSWs. Only a third of the recommended numbers were in posts at that time and their numbers had increased little by 1968, when the Committee on Local Authority and Allied Personal Social Services reported (Seebohm, 1968). The Committee members thought more would be recruited if they were employed by the social-service department because of "extended career possibilities" (Seebohm, 1968). The Association of PSWs supported this proposal, envisaging whole-time secondment to child-guidance clinics. The report's aims, that the expertise and teamwork found in child-guidance clinics should become more widespread and accessible, that services become better integrated and interdisciplinary co-operation improve, were translated by administrators into an excuse to abolish specialist training of social workers, including that of the PSWs. Universities closed their courses for PSWs in 1970 and recruitment ceased. Many trained PSWs moved into senior administration posts and teaching. Those PSWs who remained for vocational reasons saw their status and pay diminish, and had to accept supervision and direction by 'seniors' and 'managers', who often had no experience or understanding of, or sympathy for, clinical work.

Increases in numbers of child-guidance clinics were not matched by increases in psychologists trained to work in them. Professor Summerfield's working party (Department of Education and Science, 1968) recommended new and expanded arrangements for training and an increased ratio from one psychologist to 20 000 children to one to 10 000. More were trained, bringing the ratio to one to 11 000 schoolchildren in 1977 (Warnock, 1978). The new psychologists were no longer trained in the child-guidance method, so although their numbers increased, few were able or inclined to join a clinical team, preferring autonomy in separate school psychological services. The Warnock committee considered the primary task of psychologists was to help teachers to deal with emotional and behavioural problems in schools, "working where necessary with psychiatrists and social workers". The committee's intention to improve and streamline services for the handicapped was not achieved for the 'maladjusted' by the Education Act 1981 – only the name disappeared. All children needing any kind of extra help in school had to be 'statemented', adding a huge administrative burden to educational psychologists and diverting them from work with children in schools and clinics. Paradoxically, the act has led to long delays in obtaining specialised education and the closure of schools for maladjusted children and inflexible arrangements for ordinary schools to get extra resources for children with mild learning problems (Wardle, 1986).

Fads and fashion

Fashion has often determined the public's expectations of child psychiatric services. Autism was foremost in the 1950s and 1960s, dyslexia, anorexia and hyperactivity in the 1970s, 'additives' in the 1980s; sexual abuse or even satanic ritual is the current concern. Such dogmatic overemphasis and polarisation by the media and politicians interferes with planning and provision of balanced comprehensive services.

Overvalued simplifications and maleficent dichotomies

In 1892, Sully, writing in Tuke's *Dictionary of Psychological Medicine*, warned of the danger of "narrowness of interest with an accompanying tendency to monoideism, when subdivision and specialisation of work has been carried to an extreme point". The consequence of failure to heed this wise

Table 7
Maleficent dichotomies

Methods/ideas		Counter-methods/ counter-ideas
Nature	v.	Nurture
Behaviourism	v	Psychoanalysis
Psychological methods	v.	Medical methods
Child guidance	v.	Hospital child psychiatry
Residential treatment	v.	Community treatment
Family therapy	v.	Individual therapy
Educational methods	v.	Therapeutic methods
Control and discipline	v.	Loving nurture
Professional autonomy	v.	Team work
Belief in standards	v.	Tolerance of deviance
Confidentiality	v	Open communication
Audit and good management	v	Professional freedom
Measurement and scientific methods	v.	Descriptive, humanitarian methods

advice on the development of services for children has been plain. Simplification of a complex subject is so attractive that it may become overvalued as the final and exclusive answer. Differences of opinion and practice can lead to continuing, healthy evolution, but only if opinions are not held with delusional fervour. This has not been the case in 20th-century child psychology. Table 7 summarises some of the more exaggerated splits. They are styled 'maleficent dichotomies' because of the harm they have done in depriving children of balanced care and child rearing. Strike out versus from Table 7 and we have a list of concepts and strategies comprising a comprehensive service for children. All can be compatible, none need be exclusive or in opposition. Yet all have been the subject of bitter, devisive controversies that have prevented child experts from being able to work together and pool their valuable ideas, expertise and resources to provide a combination of the best to suit each child's unique problem.

Professional teams who have been most successful in overcoming these problems have brought all members together to solve problems and for training, planning and decision making, without denying or minimising real differences in status, experience and knowledge (Wardle, 1989). There is no point in cross-disciplinary co-operation or including different disciplines in a team unless each brings and uses unique and special expertise and experience not possessed by the other members of the group. No trained specialist should have to compromise special skills to keep the peace in the team – this can only lead to a blurring of roles, a rigid adherence to a common psychopathology (Miller, 1968) and loss of team strength and breadth. The quality of the mix of different professionals makes a team successful provided there is a common belief in the value of the team and of each other's work.

Systems of classification

Attempts to apply the approach of Linnaeus and Kraepelin to classification of child psychiatric problems has exposed the weaknesses of exclusive categorisation for problems which are the product of numerous psychological and physical causes interacting since conception. Good classifications of problems, causes, treatment, and outcome, which are essential to planning and evaluating services, are now emerging in response to the Korner report (1984) and governmental demands for audit. This could be one benefit of the latest NHS reorganisation to child psychiatric services.

The gradual evolution of multiaxial classifications, begun in the early 1970s (Rutter *et al*, 1975), may succeed in overcoming the diagnostic dilemma. Meanwhile the problem-orientated treatment-planning system (Weed, 1969), effective in improving team-work in psychogeriatrics (Williams & Owen, 1988), has proved a valuable aid to multidisciplinary planning for day and in-patients (Nurcombe, 1989; Wardle, 1989). Kinston & Bentovim (1978) demonstrated the value of defining a focal explanatory hypothesis and limited aims in family therapy. Weed's system requires identification of targets for change followed by the generation and trial of strategies to achieve it. Such objective systems make clinical work and staff deployment more efficient and forge team cohesion. They also prevent 'therapy' becoming interminable and self-indulgent (Kinston & Bentovim, 1978). Something very like them was used in the 19th-century psychological laboratories of Galton, Sully and Cattell.

Conclusions

The early part of this paper owes much to other reviewers, although most of them concentrated on the academic, clinical, and conceptual aspects of child psychiatry, rather than service provision. Personal involvement will have given an inevitable bias to the account of the last 40 years.

It seems that children always have been and always will be at the mercy of the quirks and foibles of adults, and so are services for children. There are many instances of brilliant innovators whose successful enterprise foundered through lack of funds or hostility or faded after their death. In Britain, between 1925 and 1985, we have seen the rise and fall of three valuable ingredients of our comprehensive service: psychiatric social work, the liberal special school for maladjusted children, and the multidisciplinary child-guidance approach. All seem to have fallen victim to a process in which a committee of inquiry, set up for another purpose, made recommendations whose transformation into law by politicians and implementation by local administrators made it impossible for them to continue to function. Skilled use of play as a diagnostic and therapeutic tool may soon be lost, only remaining in vestigial form in the clumsy use of 'sexually explicit dolls' to extract confessions from abused children.

Services are as good as their providers. A historical review shows how many well founded procedures and imaginative ideas for treatment and care suffer in the hands of later practitioners and change adversely, as time passes, by becoming institutionalised, automatic, and stereotyped, losing their original purpose and humanity. Good ideas can be transformed into overvalued ideas or polarised into maleficent dichotomies.

Repeated instances are found of rigid, or even sadistic, adults who can make children suffer when 'helping' them. Even love and play can be turned nasty. On the other hand, we find examples, in every age, of adults with the genius to make school work, treatment, or stay in hospital enjoyable. Those who have succeeded with children and championed their cause seem to have been blessed with positive attitudes towards and tolerance of children, quick wittedness and a sense of humour. They often seem to come from minority or unorthodox groups in their society or are from outside it. In Britain, Quakers played a significant part in the 19th century, refugees from Hitler in the 20th. Do we tend to take up ideas more readily if they come with a foreign accent?

Kanner (1955) divided the growth of child psychiatry, from 1900, into four decades, to which I have added explanatory examples:

first decade: thinking about children (e.g. child studies, psychodynamic theories)
second decade: doing things to children (e.g. sending them to special institutions)
third decade: doing things for children (e.g. making changes in family and school)
fourth decade: working with children (e.g. individual treatment of children, and play therapy).

It is a neat simplification; if we continued Kanner's model up to the end of the century, it might read:

fifth decade: working with mothers
sixth decade: working with fathers and marriages, and groups
seventh decade: working with whole families, and institutions for children
eighth decade: working with an interactional model and with protective positive factors in the child and family
ninth decade: promoting resilience in the child and protective factors in school
tenth decade: promoting protective factors for children in society, preventive child psychiatry?

This analysis seems to highlight two major shifts in strategy during this century; in the middle, some professionals stopped doing things to and for their patients and started helping them to change themselves. In the 1970s a shift of emphasis began, away from the search for problems, pathology, and negative factors in the patient and family, towards a search for assets and positive attributes to work with.

Associations have been found between child problems and adult adjustment (e.g. Robins, 1978), but prevention of adult maladaptation. the hope and expectation of child psychiatry throughout its history, has yet to be realised fully.

The evolution and development of services depends on a chain of people, starting with people of vision and genius, who give ideas, to practice innovators, who in turn capture the imagination of charismatic-idea spreaders, who excite the interest of men of influence, who have access to controllers of a source of money (philanthropists in the past, now politicians, and 'managers'); finally, there must be money and a climate of approval for the project and its beneficiaries.

During the second half of this century, a wide range of advances in treatment and technology have become available to the clinical team. With each innovation we have seen the danger of its overvaluation. The antidote of rigorous evaluation has not been applied enough (Grahame, 1976; Hersov, 1986). Gradually, behaviour therapy may be getting a more human face and psychodynamic therapy a more practical one; they are now being combined harmoniously in residential work, social-skills training and family therapy.

I agree with William Parry-Jones (1989): "the influence of fashion and faith on service delivery needs to be challenged"; and with Dora Black (1987) – vulnerable children need protection from the effects of "the political see-saw". Recent news reports about the treatment of disturbed young people in Greece and Romania emphasises this. Our history has demonstrated the stultifying power of ill-considered legislation combined with blind administration. Inflexible organisation, management and systems of training and supervision, whether bureaucratic or commercial, tend to exclude or drive away the people best suited to empathic work with the young, leaving rigid, grey, stereotyped, institutionalised, establishment men. This has already happened in social work and teaching.

However advanced our treatment technology, its success still depends on the quality of the relationships of the treaters with the patient, the family (Grahame, 1976), other agencies, and with each other. Concerted effort is needed by all disciplines and agencies to understand each other's differences and work together. Withdrawal of child psychiatric services into a hospital base (Black, 1987) or 'medicalisation' (Parry-Jones, 1989) may lose the whole point of child psychiatry. The 'physicianly skills' (Taylor, 1988) of a child psychiatrist should be cast from the mould of Sydenham and Meyer, using a psychobiological approach which appraises and treats the whole person in his unique context. A successful strategy for a comprehensive district service has been described (Wardle, 1989); it should include a resource centre with facilities for day and in-patients providing a base, training and support for teams in the community.

We have found throughout this history that, much more than in other branches of medicine, the provision of psychiatric services for children and adolescents is affected by the character and attitudes of those concerned, at every level, from therapist to Minister of Health. Important also have been sociocultural changes in public opinion and attitude, belief systems and taboos. If we can predict anything from the past it is that these will continue to determine the future of services more than anything.

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The Surrey County Lunatic Asylum (Springfield)

Early Years in the Development of an Institution

IAN LODGE PATCH

In the mid-19th century, the Commissioners in Lunacy continued the direction of the earlier reform movements, but depended upon local magistrates for the execution of their ideas. The early development of a single county asylum is described from its beginnings, as are some of the personalities involved.

In the first years of the 19th century, the movement for reform on behalf of the mentally ill culminated n the County Asylums Act 1808 ("Wynn's Act"). Although they were now enabled to provide public asylums for paupers, and had been given suitable directions to that end, the county authorities were slow to respond, and by 1827 only nine county asylums had been opened. The parliamentary select committees of 1814–17 and the unsuccessful bill of 1819 gave further impetus, and by 1842 another eight asylums had been established; among them was one in Surrey, which on 14 June 1841 formally opened, with the admission on that day of 22 patients.

By that time, further legislation was impending, and the Metropolitan Lunacy Commission of 1828 was to be confirmed in its character and policies by an act of 1845. Under the leadership of Lord Shaftesbury and with continuity of membership, the new Commission exerted a consistent influence over many decades that culminated in the massive asylum-building programme towards the end of the century (Mellett, 1982; Hervey, 1985; Cochrane, 1988). Although the Commissioners developed their ideas centrally and brought a regulated uniformity and efficiency to the service, they depended for their execution upon the local magistrates, who represented at this period the real power in a community (Hervey, 1987).

This paper describes the establishment of a single county asylum, particularly in its early years.

The Committee of Justices

The arrangements for the building and administration of the Surrey Lunatic Asylum were put into the hands of a Committee of Visitors, itself a subcommittee of the Committee of Magistrates, the precursor of the county council. Before the Local Government Act 1888, the magistrates were appointed by the Home Secretary, after nomination by the Lord-Lieutenant of the county. The system ensured that no tradesman or parvenu was appointed, unless his success had already ensured social acceptance. Although the magistrates were therefore qualified primarily by social status, they included many individuals of exceptional ability and lasting distinction, perhaps the more so near to the metropolis and to Parliament.

For most of the 19th century, the magistrates in Surrey were nominated by William King, Earl of Lovelace, a large landowner and a Committee member from 1837 to 1843. As a young man he had been a promising diplomat, and spoke four or five languages. His wife, the daughter of Lord Byron, was an able mathematician and a friend and correspondent of Charles Babbage. Among others of similar background was the Duke of Northumberland (on the Committee from 1847 to 1869), the largest landowner in the country, who lived near Guildford with his father-in-law, Henry Drummond (on the Committee from 1854 to 1859). Drummond, a banker and a Member of Parliament (MP), is also remembered for founding both the Chair of Political Economy at Oxford in 1825, and the Catholic Apostolic Church in association with Edward Irving, a gifted preacher of Pentecostal doctrines.

Other magistrates with a national reputation included Henry Goulbourn, who had been Under-Secretary of State for the Home Department in 1810, Under-Secretary of State for the Colonies (1812–21), and Secretary for Ireland (1821–28). He became Home Secretary in 1828 and again in 1841, and during this time joined the Committee of Magistrates, which he remained on for eight years, a combination of responsibilities that nowadays is hard to conceive. Richard Baggallay was Solicitor-General and Attorney-General, drafting much governmental legislation. He regularly attended the Committee from 1854 to 1868. William Cubitt (on the Committee from 1847 to 1853), MP for Andover, was an active member of the successful firm of building contractors and more than once was

Lord Mayor of London. Henry Peek, a biscuit manufacturer of great success and wealth, served on the Committee from 1863 to 1865, at the same period as Field-Marshal Sir George Pollock (1863–68), widely known for his daring and successful campaign in Afghanistan in 1842/43. Although he joined the Committee at the age of 80, he, too, missed few meetings.

Few doctors served on the Committee, but Charles Hood (from 1865 to 1868) brought specialist experience, having been Superintendent of Colney Hatch Asylum and later of Bethlem. At a later date was John Haydon Langdon-Down, who had been Superintendent of the Asylum for Idiots at Earlswood (from 1858 to 1868) and who opened his own institution at Normansfield "for the feeble-minded of the upper classes". In 1866 he made his "observations of the ethnic classification of idiots", describing the group by which his name is preserved.

In the movement for reform were many sharing the strong evangelical views of Shaftesbury, who tended to appoint such people to the Lunacy Commission. Their influence upon the views of the Commission was considerable (Hervey, 1987). At the local level, the evangelicals were also prominent, following the altruistic example of men such as Shaftesbury rather than enjoying his patronage. In Surrey, the previous generation had settled only a mile or two from the future site of the asylum and had found expression of their evangelical views in the anti-slavery campaign led by Wilberforce. It was now natural that the children of the "Clapham Sect" should also be active in current social issues and in a local charitable work such as a new asylum for the pauper lunatics of Surrey. Among these was Samuel Gurney (on the Committee from 1865 to 1875), who also continued the family tradition as President of the British and Foreign Anti-Slavery Society. Thomas Henry Thornton was a gifted classical and Hebrew scholar at Oxford, and in India distinguished himself in the Mutiny; later he acted as Foreign Secretary to the government of India. Charles Barclay, the brewer, had himself been a member of the Clapham Sect and prominent in the anti-slavery campaign: he served on the Committee from 1837 to 1842. His son, Arthur Kett Barclay (on the Committee from 1837 to 1846) was elected to the Royal Society for his astronomical research, and after his death was remembered as a man of "noble and unselfish character, strong religious principles, just and calm judgment".

Although among gifted or celebrated individuals there was a considerable leavening, membership of the Committee, with its three-weekly meetings, was not treated as a sinecure. The minute books show that although a quorum was occasionally lacking, half the Committee attended at least half the meetings. There was some sincerity in a minute of 1837 that the magistrates

> "feeling deeply impressed with the importance of the subject confided to their attention, they desire to state their conviction of the superior degree of comfort that would accrue to the afflicted inmates by the erection of a County Lunatic Asylum as well as the additional [opportunities] that would be thereby afforded for their restoration to the blessings of a sound mind." (Committee of Justices, 1837)

The development of the Asylum

The population of Surrey in 1841 was more than 577 000, concentrated most densely close to the Thames, which before 1880 formed the northern boundary of the county. Although the project was debated at least since 1830 (Morison, 1830), it was not until 1838 that the magistrates decided to buy his Wandsworth estates of 97 acres from Henry Perkins, the brewer who had himself bought the freehold from the Third Earl Spencer two years before. Although complaining of the lack of suitably experienced architects, they settled on William Moseley, who had been recently working at Hanwell; to advise him they turned to William Ellis and Alexander Morison. Since 1809, Morison had been the Visitor to the Surrey Madhouses, from where he had formed his estimate of the accommodation needed. He reported that there were 299 pauper lunatics to be transferred (Committee of Justices, 1841) to the new asylum, a figure coinciding with the recommendations of the act of 1808. In turn, this derived from the example of the Retreat, in York, where the inmates could still be spoken of as "the family" (Tuke, 1813; Digby, 1985) and where kindly treatment had contrasted so strongly with contemporary institutions. The same domestic image pervades the early reports of the Surrey magistrates, namely of a well ordered and tranquil household of well conducted patients, fed, dressed and cared for by kindly attendants.

The space provided at first for 350 patients was soon filled. In 1846 there were still 289 lunatics in the county who could not be admitted (Committee of Justices, 1852) and by the end of 1848, 500 new beds were opened. By 1852 the numbers had risen to 884 and the continued increase, characteristic of all asylums of the period (Scull, 1982), invited explanation.

It was apparent that the asylum had quickly become the repository for all the chronic cases in the county. Those for whom there was still hope of cure were sent, as before, to St Luke's or Bethlem, where they were maintained for 12 months without expense to their respective parishes (Morison, 1846). The more chronic population tended to stay in the Springfield asylum, but even when discharged successfully, readmission often occurred without real justification.

> "I also beg to call the attention of the Committee to the extremely trivial circumstances which induce the workhouse authorities to return patients here. It frequently happens that an inmate who is a little troublesome in the workhouse is threatened to be sent back to the Asylum. This not only irritates the persons, but they, knowing themselves to be more comfortable here than in the Union House, by their own conduct favour their removal. They are often returned to us as sane in their minds as at the time of their discharge." (Diamond, 1853)

The numbers were also inflated by the physical needs of paupers:

> "the great bulk of patients sent to this asylum are from the Metropolitan parishes, and they are generally so enfeebled in constitution, so utterly prostrate in bad health, even before insanity displays itself, that the chances of cure are greatly diminished, and they generally die prematurely of some bodily disease, and often unconnected with the disease of the brain. . . ." (Snape, 1857)

In subsequent decades the same process continued – by the close of the century the number of patients had risen to 1393 – and drew from Hugh Gardiner-Hill (Superintendent from 1889 to 1912) explanations based upon demographic changes and social drift.

> "The County, fringing as it does on such a large town as London, has seen the old farmer or market-gardener, who was able to look after his weak-minded but possibly to him useful relative, gradually replaced by the mechanic, who is not, for his work takes him up to town, causing him to leave his home for hours together. . . .
>
> "There is no doubt that the influence of gravitation is responsible for such a large number of stray cases in the County. Many of the unemployed, and those who have failed to obtain a living in the rural districts, have been finding their way to London . . . owing to the agricultural depression of late years and are predisposed by the disadvantageous condition to which they are reduced to such powerful exciting causes of insanity such as drink, poverty, exposure and mental anxiety." (Gardiner-Hill, 1893)

The continued demand for beds leading to a steady increase in size was a process opposed by Morison (1860) and viewed by the Commission with concern:

> "It has always been the opinion of this Board that Asylums beyond a certain size are objectionable, they forfeit the advantage which nothing can replace . . . of individual and responsible supervision . . . vigilant observation of individual peculiarities; but where the patients assembled are so numerous that no medical officer can bring them within range of his personal examination and judgment, such opportunities are altogether lost, and amid the workings of a great machine, the physician as well as the patient loses his individuality." (Commissioners in Lunacy, 1857)

This gradual disappearance of individual care marked, at Springfield, the change from a 'family' to an institution, which became increasingly self-contained and isolated from the surroundings upon which it impinged, and which eventually reacted against it. If further enlargement were needed, building should take place elsewhere; the case was put forward by the Guardians of the Chertsey Union in 1859:

> "the testimony of medical authorities of recent date goes far to establish the proposition that congregating together such large numbers of lunatics is injurious; and that if any increased accommodation is absolutely required, it should be obtained by the erection of an Asylum in the more rural part of the County, on the most economical plan. There are many situations in this county which would afford abundant open space, land of low value, and the most favourable climate." (Committee of Justices, 1859)

The argument led eventually to the building of other hospitals for Surrey at Brookwood (in 1860) and Cane Hill (in 1884). But at this time the magistrates resisted the suggestion that patients should be removed far from their origins; in Wandsworth, a majority of patients retained contact with relatives and were more easily rehabilitated.

Isolation arose not only from a remote site, but from public attitudes, which drew adverse comment from the Commissioners (Mellett, 1982). In 1857, when patients were allowed to walk outside the grounds, "Numerous and serious complaints . . . in a state of great alarm" were received from local residents: 25 years passed before another such excursion was sanctioned by the Committee.

In a now large institution, the inmates needed separation or classification according to their clinical state. Conolly (1847) separated his convalescent patients at Hanwell from the acute, but Prichard, repeating the views of Esquirol and Pinel, carried the process further:

> "a lunatic asylum ought to be composed of several parts more or less insulated. There should be a quarter appropriated for each sex, a division for violent lunatics, a second for those that are tranquil, a third for convalescents, a fourth for lunatics who labour under accidental disorders. It will be very useful to have a division for those of melancholy habits, and in a state of dementia. . . ." (Prichard, 1835)

At the Surrey Asylum, the most obvious expression of 'classification' took place when in 1897 a new 'asylum for idiots' made possible the removal of the mentally handicapped (often children) from the ordinary wards. The idea had been debated for 20 years by the Committee, but the advocacy of Hugh Gardiner-Hill brought it into effect:

> "that I have always viewed the arrival of these idiot children with deep dislike is well known . . . I trust that the County will soon provide an asylum of its own . . . where weak minded children, suffering from arrested development of intellect, can be educated to help themselves, and to become tolerable artizans and workwomen." (Gardiner-Hill, 1893)

In subsequent years, further building provided for disparate needs within the large "surrogate community" (Mellett, 1982).

The doctors at the Asylum

A consequence of the movement for reform had been to cast much unfavourable light upon asylum medical men. The inquiries at York and Bethlem had left a general impression of complacent ignorance colluding with neglect and inhumanity. While public attitudes were so sceptical, the doctors needed to reassert their leadership and in due course to establish psychiatry as a profession. This process took place only slowly and found expression when, on 19 June 1841, Samuel Hitch of Gloucester circulated a notice to 88 of his colleagues –

> "medical gentlemen connected with Lunatic Asylums should be better known to each other – should communicate more fully the results of their individual experience – should cooperate in collecting statistical information relating to insanity and above all should assist each other in improving the treatment of the insane. . . ."

A few weeks later, at their first meeting (on 27 July 1841) those gathered affirmed more formally that their "objects shall be improvement in the management of such Institutions and the treatment of the insane; and the acquirement of a more extensive and more correct knowledge of insanity" (Association of Medical Officers of Lunatic Asylums and Hospitals for the Insane, 1841).

For their new asylum, the Surrey magistrates were obliged by the act of 1828 to have a resident medical officer. Although 11 doctors applied for the job, the magistrates complained of the lack of relevant experience in the profession: "Comparatively few of the medical profession have devoted their minds to the remedial treatment of insanity." The first to be appointed, Thomas Quick, appeared an exception in that he had worked under William Ellis at Hanwell in 1833 and subsequently at Forston Grange, near Dorchester. His wife was appointed as the first matron, but fell ill, probably with bone tuberculosis and soon died. Quick immediately quarrelled wit the steward over their mutual responsibilities (simila conflicts had occurred at Hanwell (Scull, 1982)) an after his bereavement was accused of overfamiliarit with female patients and nurses, of drunkenness an absence without leave, and he was eventually aske to resign.

Samuel Hill (1811–74), who followed Quick had never worked with the mentally ill, but hi inexperience did not deter him from publishing, i the year following his appointment, "Suggestion for providing for all the Pauper Lunatics in Englan and Wales". Personally, he soon revealed himsel as an uncouth and aggressive man, who threatene his subordinates and was outspokenly rude to hi seniors (Morison, 1844*a*,*b*). He may have mellowed because in later years he established a reputation a a vigorous superintendent of the South and Eas Riding Asylum, York, although always known and criticised for his independent, if reactionary, view (Bucknill, 1854).

Joseph Holland, who followed Hill, was withou experience, but was a diligent, careful man, given to moroseness. He left for Manchester after three years, but had already been joined, at the insistence of the Lunacy Commissioners, by a second resident; there were by now over 500 patients to be seen daily. Charles Snape had previously worked as a general practitioner and was chosen from 23 candidates only by the Chairman's casting vote. He had a reputation for the meticulous care of his patients, but soon complained that he was not given sufficient deference, while the nurses disliked his dictatorial, authoritarian manner. Morison records in his diary their meetings and ward rounds, but he too complains of Snape's rudeness.

Hugh Diamond (1807–81), appointed in 1849 as the second resident medical superintendent, had considerable experience from Bethlem. He was an agreeable, cultivated companion, and in later life was known as a knowledgeable antiquarian and collector. He was a notable and early photographer, made significant technical advances, and recorded many of the patients at the Surrey Asylum while he worked there.

However, after the death of one of Snape's patients, Diamond absented himself from the inquest, and removed the patient's heart, later burning it in his surgery fire. These ill-judged and unexplained actions led to the Committee demanding his resignation. Although he later prospered as the superintendent of a private madhouse, he never exhibited photographs again (Gilman, 1976; Lodge Patch, 1976; Burrows & Schumacher, 1979).

In trying to ensure the best medical care, the Committee compensated for lack of experience by specifying their doctors' duties with great rigidity. The Resident Medical Superintendent must not only "bleed, cup, and perform all surgical operations and read prayers, morning and evening" but also "reside in the Asylum, and not to absent himself without the permission of the Committee", requirements frequently ignored, at least by Quick and Hill. These oppressive restrictions were to some extent mitigated by enviable material circumstances. With coals, candles, produce from the asylum farm, and £350 a year, Charles Snape, for example, lived in generous accommodation with his wife and three children, along with an unmarried female relative, a footman, lady's maid, governess, and nurse.

The supervision and education of these largely untrained residents lay in the hands of the Visiting Physician, Alexander Morison (1779–1866). The appointment was intended to secure, at a modest fee, the expertise of a senior experienced doctor who would visit the asylum twice weekly. In 1841 Morison was 62 years old, with a substantial private practice (Hervey, 1987). His own training in psychiatry had been haphazard, although his Edinburgh MD thesis of 1799, "De hydrocephalo phrenetico", bore some relevance to his later specialty, and in 1804 he had received encouragement towards the "lunatic branch of medicine" from Dr Alexander Crichton of St Petersburg. But his marriage to an heiress had made him a dilettante and he was consulted more on agricultural than medical matters. His appointment in 1809 as Visitor to the Surrey Madhouses (which contributed, 30 years later, to his appointment as Visiting Physician to Springfield) arose from the assiduous cultivation of patronage.

Morison's first deliberate attempt at improving his own psychiatric education was made only in 1818, when he visited Paris. He records many details of the month he spent conversing with Esquirol, attending his lectures, and following his hospital practice. On his return he became more active in psychiatry, visiting William Ellis and the new asylum at Wakefield, and again visiting Esquirol in 1819 and 1820. A longer visit in 1825 enabled him also to meet Spurzheim, Bardenat and others, from whom he learned what he later reproduced in his own lectures. After public advertisement, the first of these were given in Edinburgh in 1823, and in London in 1825. His audiences were (unlike Conolly's) never large, sometimes comprising only two people, but his lectures doggedly continued and were published as notes and more extensively between 1825 and the mid-1840s. At Springfield, from the first, he asked the Committee for permission to use the patients for teaching:

> "I have with your sanction been accompanied by a limited number of medical pupils in my visits to the Asylum, and as has been my custom for the last twenty years, I have endeavoured to communicate to them all the information in my power respecting the nature, causes and treatment of the very important class of diseases with which the inmates of the establishment are peculiarly afflicted." (Morison, 1843)

In later years Morison's supervision of the resident doctors dwindled, and when in 1855 he retired from the asylum at the age of 76, he was not replaced as Visiting Physician. By that time such appointments were opposed from within the profession (Scull, 1982), and by the Commissioners who had criticised the ambiguous responsibilities of the visiting physicians at Bethlem, despite the retorts of the governors; Morison himself, on that occasion, had been the subject of hostile questioning (Commissioners in Lunacy, 1852). As a result, the medical superintendents were left to themselves. Snape's over-sensitive personality may have made it difficult to learn from others, and his known therapeutic activity encouraged him to eccentricities, such as the use of prolonged shower baths. When in 1856 he was struck by a patient, he ordered a particularly prolonged shower; the patient subsequently died. The Commissioners in Lunacy charged him with manslaughter, but although exonerated from culpability or punitive intent, Snape was criticised by his colleagues as rash. Therapeutic practice, especially if out of the ordinary, should first be exposed to the critical judgement of colleagues (Bucknill, 1856).

The case, widely discussed, helped to clarify the ethics of practice for many years (Hack Tuke, 1892). At the Springfield Asylum itself, the Committee now accepted the need for more professional supervision and appointed John Meyer (1809–66) as Chief Resident Physician. After graduating in Heidelberg, Meyer had spent ten years as superintendent of the Criminal Lunatic Asylum, New Norfolk, Tasmania. While on leave in Europe, he had been invited to travel with others to the Crimea, and had been in charge of the hospital in Smyrna. After Snape's therapeutic disaster, Meyer brought an experienced, steadying influence to the asylum until, in 1862, he was invited to Broadmoor as its first superintendent.

The Committee replaced him with a safe choice in James Strange Biggs (1829–94), a careful, conscientious man whose psychiatric experience had been gained over four years at Springfield. Recognising the value of Meyer's contribution, the Committee confirmed Biggs in 1864 as the ultimate authority in the asylum, administrative as well as medical. In due course they provided a mansion of appropriate dignity into which Biggs moved in 1881, expressing in visible form the new supremacy of the medical superintendent (Scull, 1982).

The dissemination of knowledge and the educative purpose of professional intercourse had been important objects of Samuel Hitch's circular, but professional development was hampered by the restrictions imposed upon asylum doctors, and exemplified by the Surrey magistrates:

> "the periodical meetings for the interchange of experience and opinion, and the discussion of disputed points, which formed one main object of the Association, have fallen into disuse. The exigeant duties of the members, and the system which prevails in this country of vesting in the Medical Superintendent the entire management of an asylum and the treatment of patients, have rendered it impossible that any large proportion of these officers should ever leave home at the same time." (Bucknill, 1853)

No doubt this was why, at the early meetings of the Association, the Surrey Asylum was poorly represented, unless (as on 5 June 1843 and on 19 July 1851) the meeting happened to take place at Springfield itself. But the professional significance of such meetings was stated by Bucknill (1853) in his editorial for the first copy of the new *Asylum Journal* founded by the Association:

> "The Medical Officers of lunatic asylums have not only a right to speak with authority on the subjects of their vast and privileged experience, but the public have a right to expect that they shall so speak. . . . Their own especial interests, not less than those of humanity, would eventually suffer from such silence."

Publication was the answer to the practical difficulties of professional gatherings. Charles Snape was one who might not have suffered had his views been earlier made known; the Association's journal was intended to make such communication easier.

Although at this time contributions from the Surrey Asylum did not feature in that journal, Morison's views, derived from Esquirol, were well known, since his lectures and textbook had already appeared in several editions (Morison, 1826, 1828).

In 1838, Morison's second book appeared: *The Physiognomy of Mental Diseases* presented a series of drawings of patients, by various artists and collected over several years, each case being accompanied by a clinical description, diagnosis and brief account of the outcome. Morison expected the appearance of illness, captured in this way, to provide the basis for educating a wider public about the nature of mental illness. Although these hopes were hardly fulfilled, they were the basis of some advance with the advent of photography; Hugh Diamond's portraits of the patients in the Surrey Asylum were the basis of his paper read to the Royal Society (Diamond, 1856/57) and were also used by Conolly (1858) as the subject of a series of lectures.

Nursing

In 1841, professionalism and tradition among nurses did not exist and the contribution of Florence Nightingale had yet to be made. The Committee of Visitors was left to its own devices in the selection of the attendants who would provide the daily care of their patients. With the help of their matron, herself paid only £80 annually, they recruited those who might fulfil an ambiguous and demanding role:

> "Their capacity and good conduct materially affect the comfort and care of their charge. They are instruments for carrying into effect every remedial measure, and it requires on their part firmness and self-control, blended with humanity and forbearance; at the same time they are called on to perform many menial offices." (Committee of Justices, 1844)

Although not necessarily the "dregs of society" (Scull, 1982), the attendants accepted work of the most difficult character, in the most restrictive circumstances, with little or no respite, and scanty rewards. Their lowly status was reflected in their annual pay of £25–31 for men, and for women £12–16, that is, rather less than the cook or laundress and rather more than the housemaid. Besides being required to maintain a rigid ward routine, the attendants slept on the ward and were "not to be permitted to leave their wards except at the times mentioned above, without some sudden or urgent cause; and under no circumstances without previously informing the attendant in the next ward of the occasion of their absence". The exceptions were when they presented themselves at the kitchen for food, with tray and tins, and at the same time collected medicines from the surgery.

On the wards, the proportion of nurses to patients presented a formidable task of supervision and vitiated hope of individual care. Conolly (1847) advocated 1 nurse to 17 patients, or 1 to 13 in troublesome wards. At Springfield the proportion during the first few decades lay nearer to 1 to 20, and did not significantly improve until the end of the century.

These impossible or incompatible demands must have placed great strains upon attendants of limited talents. Nevertheless, the serene example of the Retreat and the Jepsons (Digby, 1985) persisted for others to emulate.

Improvement in conditions only came slowly. In 1855 the Commissioners still drew attention to "the unpleasant fact that a great and increasing difficulty exists in procuring good attendants", and Bucknill (1856) commented that too much was expected of them or "rather . . . incompatible qualities". It was hardly surprising that the Committee had to consider from time to time episodes of violence committed by nurses, from whom so much was asked.

The Commissioners in Lunacy contributed little practical help beyond drawing attention to the problem. However, in 1847 they circulated to all the superintendents information regarding their attendants which would form the basis of a central register of nurses. They hoped that this might improve standards and "might eventually induce persons of superior qualification to become members of this very useful class" (Commissioners in Lunacy, 1847). Regrettably, Bucknill had to observe in 1856 that the central register had proved useless and must be considered a failure (Bucknill, 1856).

While standards remained a problem, those who were recruited still needed help and education in their difficult work:

> "The important delicate task of regulating the conduct of persons of unsound mind, of controlling excitement, restraining waywardness or removing mental depression, is unavoidably confided to persons of limited education; but these are too frequently chosen with little regard to their disposition, temper or intelligence; they are permitted to commence their duties with as little preparation as if their office was merely one of a servant . . . without the consideration and indulgence requisite to support their patience, and to encourage them to be considerate and indulgent to those on whom they attend, and who are wholly in their power." (Conolly, 1847).

To these essential tasks of education and support, the Commissioners contributed little. The new Association for Medical Officers of Lunatic Asylums and Hospitals for the Insane was also dilatory in accepting responsibility. Lectures and examinations were initiated only in the last half of the century, the "Handbook for the Instruction of Attendants on the Insane" appearing in 1885 and an examination in proficiency in 1891. At Springfield, nurses who passed the qualification earned, from 1895, additional pay.

But from the first, the Committee was generous only in its exhortations: "Much attention has likewise been given to the cultivation of systematic habits of kindness and gentleness on the part of the attendants . . . that the full effect of moral influence in word and deed might accompany every remedial measure" (Committee of Justices, 1844).

Alexander Morison (1844*a*) responded in a more practical way to the need:

> "I have this year continued the plan of giving lectures to the male and female attendants; in which I have endeavoured to communicate . . . the principles upon which our conduct towards the insane ought to be regulated: in particular I have pointed out . . . such useful employments and rational amusements, as may tend to divert their minds from hurtful subjects. . . . That my instructions of preceding years have not been without good effects, I trust, may appear evident from the present state of the Asylum and from the fact that, of the four premiums offered to meritorious attendants by the Society for improving the condition of the Insane, three have been awarded to the Surrey Lunatic Asylum. . . ."

Although Morison's claims seem diminished by his self-congratulation, his lectures appear to have been the first regular attempt to educate psychiatric nurses in England. Although it remains uncertain what he had to say, he seems to have addressed the immediate needs of the nurses rather than provided a systematic understanding of their work. The influence of Morison's lectures did not extend beyond the Surrey Asylum, and the Commissioners in Lunacy did not encourage any such wider endeavour.

Discussion

By the time that the Surrey magistrates were starting to build their new asylum, the Metropolitan Commission in Lunacy had been in existence for more than a decade. Its policies, developed centrally, now had to be interpreted locally by the Committee of Justices appointed for the project. Although some of these men had had relevant experience, the qualifications of most lay in their social status, altruism, or in public affairs, sometimes at the highest level. At the outset, their ideas of what had to be done could still be guided by the 1808 Act and the example of the Retreat. They responded by seeking to bring into being an environment conceived on an ideal domestic model. Their immediate difficulties lay in the recruitment of suitable staff, who were woefully scarce, and in a steady escalation in the size of their new institution. Such practical considerations brought changes to their initial ideas.

At times the Committee came into conflict with the central authority, the Commissioners in Lunacy, whose opposition, for example to the continued increase in size, led to their refusal to sanction further building in 1859. The alternative would have meant building further afield. This in turn would have taken patients far from their homes in the most densely populated boroughs near Wandsworth. The Committee's decision to stand by their original principle – and site – led to sharp exchanges with the Commissioners. In the event, the Surrey magistrates prevailed, although accepting thereby the consequences of increasing size that progressed for the next century.

Further difficulties with the Commissioners arose following the death of Charles Snape's patient as the consequence of a shower bath. Without consulting the Committee or Snape, the Commissioners had instituted an immediate inquiry, called witnesses from the asylum staff and proceeded with a charge of manslaughter against the doctor. The position of the Committee was embarrassing, but they desisted from comment, and loyally supported Snape until the case was over. Only then did they criticise the Commissioners severely for the high-handedness of their actions. The stresses upon the Committee must have been severe and perhaps contributed to the death of the Chairman within a year.

It was ironic that this crisis should have engulfed the Committee so soon after Morison's retirement as Visiting Physician. In deciding not to replace him, they were following a national trend towards allowing complete autonomy to their medical superintendents. Now they were compelled to seek the resignation of one (Hugh Diamond) and to appoint a chief resident physician (John Meyer) for the better supervision of those less experienced. This step also brought forward the hegemony of doctors in the asylum, further confirmed in 1864 when the Committee recognised Biggs as the supreme authority, administrative as well as medical.

Although this step greatly restricted the doctors' opportunity for professional intercourse and development, it provided the Committee conveniently with someone responsible for closely supervising their asylum and its staff. For their nurses, over the first few decades, the Committee could provide nothing beyond the most rigid regulations, and exhortations to kindliness.

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Measurement in Psychiatry

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Progress in science depends upon the fertility of inspiration, the acuteness of observation, and the accuracy of instruments to measure those observations. It is with respect to the last of these that progress in psychiatry has lagged. Instruments in plenty have been devised, many have been acclaimed and some accepted as a standard against which the other measures are judged; some have even come to be used as a definition of the disorder to be measured, the achievement of a certain score indicating that the disorder is present.

Validity and reliability are the foundations of measurement. Validation of psychometric procedures is usually considered under several headings: face validity, content validity, concurrent validity, predictive validity, and construct validity. It is in the last of these that major problems occur, since the construct of most psychiatric concepts are themselves not firm, or at least not agreed upon by psychopathologists. *Construct* validity requires that the instruments should accurately reflect the basic nature of the behaviour or disorder.

Take as illustration one of the most frequently measured concepts in psychiatric research, that of depressive disorder: if it were universally agreed that this disorder is based on a lowering of self-esteem then ways of assessing the construct could be devised, but there is no such agreement that either that construct or any other is the basic fault in the disorder. 'Depression' is a term used in different ways; it is too readily supposed that an instrument which is styled a 'depression' rating scale is equally valid in all these ways. If there can be no agreement, on account of differing theoretical approaches, of the basic constructs of psychiatric disorders – or at least the terms used to name disorders – then the theoretical premise of the instrument should be clearly set forth, so that all may know what it presumes to measure. Unfortunately, this is rarely done.

The processes of *face* and *content* validity have been more popular in the devising of instruments to measure psychiatric disorders. *Face* validity is the procedure of inspection of the instrument to determine whether it looks as if it will measure what the researcher wishes it to measure. If the researcher requires a definition of severity of a disorder in terms of the aggregate severity of a set of symptoms, are those symptoms represented and is the definition o their individual severity acceptable? *Content* validity is a more extensive undertaking which requires that all aspects of the concept to be measured should be covered. The result is an instrument with a large number of items which may indeed assess the disorder but will not be specific to the disorder. Frequently authors of rating scales rest their case upon the demonstration, through factor analysis, that a major factor has emerged which represents the concept of the disorder; the danger however is that the factor merely represents an overall state of malaise.

Concurrent validation is also popular in the presentation of a psychometric test. The demonstration of a statistic such as a high correlation figure with some other measure of severity often leads to an uncritical acceptance of the new instrument; if the full range of severity, from absence of the disorder to its presence in maximal severity is covered, then all indices of severity will have a high correlation. Furthermore, instruments are often introduced without any information to indicate what degrees of severity are represented by different scores.

Constructs of disorders are sometimes quite arbitrary in the presentation of psychometric devices. For instance, Hall (1977) surveyed the scales that have been proposed as measures of general severity of disorder in long-stay psychiatric hospital patients. He identified the five scales which had been most frequently used in the studies presented in the *British Journal of Psychiatry* during the decade 1960–70 and noted that the coverage of aspects of disorders varied considerably: one scale placed major emphasis on violent behaviour, two others considered that disturbances of speech were the most important indicators of severity, while another considered just three indices of severity of disorder – speech, attendance to hygiene, and work record. Hall observed that there was no guidance as to the different purposes to which these instruments should be put; some were completed on the basis of information provided by ward nurses and others required an interview with the researcher. The instruments might therefore be used interchangeably, and one of the scales had been used in studies to assess the effect of intensive nursing care, the effects of withdrawal of medication, and the usefulness of air encephalography in categorising patients. Clearly, little attention had been paid, either by the authors or the users of the instruments, to the matter of *construct* validity.

Comparative studies of instruments and their respective psychometric properties are unusual and frequently the prospective researcher must make a choice from a list of instruments which purport to provide measures of the same concept. Carroll *et al* (1973) noted that the choice of instrument is usually an arbitrary decision, often taken under the influence of local affiliation and without much consideration of the suitability of the instrument for the particular study or examination of what is known about its particular psychometric properties.

Reliability of an instrument concerns the evidence that a measure may accurately be repeated – for instance, that a metre rule will measure exactly one metre no matter who uses it or under what circumstances. Frequently, a new psychometric instrument is introduced with little attention to its reliability. Information may be supplied on one aspect, such as consistency of use by different raters (i.e. an inter-rater agreement coefficient), but other important aspects, such as whether the instrument is as accurate in mild as in severe degrees of the disorder, are left unanswered. It is, of course, impossible for those who devise instruments to present all aspects of reliability, including reliability in translation, at the time of the publication presenting the instrument, but deficiencies should be recognised and further studies planned.

Carroll *et al* (1973) have listed the characteristics of a rating scale under the headings orientation, sensitivity, specificity, information access, and utility. *Orientation* refers to the bias inherent in the scale. For instance, Thompson (1989) reviewed a number of depression rating scales and noted that the orientation varied from a somatic bias (e.g. the Hamilton Rating Scale for Depression) to a cognitive emphasis (e.g. the Beck Depression Inventory). Such scales have different uses but conclusions based upon them cannot easily be substituted; for instance, a therapeutic response demonstrated by the use of one scale may not be upheld if another scale is used. Carroll *et al* used the term *sensitivity* to indicate the ability of the instrument to distinguish between degrees of severity throughout the full range of severity of the disorder; for instance, a scale may be sensitive in severe degrees but be unable to distinguish between milder degrees of the disorder. *Specificity* refers to the degree to which high scores on the scale are obtained only in the disorder it purports to measure; for instance, a scale such as the Hamilton Rating Scale for Depression, by reason of its wide coverage of somatic items, will record high scores in any condition with multiple somatic symptoms. *Information access* refers to aspects of a disorder which a scale can, and cannot, assess; for instance, a scale constructed from behavioural items will not have access to mood, and a self-assessment scale will not have access to delusional denial of illness. Finally, the *utility* of an instrument refers to its ease of use in the disorder for which it was designed; for instance, obscure phrasing will diminish comprehension and so decrease the utility of the instrument.

In a further consideration of rating scales Hall (1980) made a number of observations concerning the loose construction of instruments for psychiatric research and added a list of recommendations which are summarised (in abbreviated form) here.

(a) Has the content of the scale been selected on any rational basis? Any initial pool of items will include those of little discriminative value or low validity or reliability; unless these items are eliminated there can be little confidence in the scale content.
(b) Is the observation period specified on which ratings are to be based?
(c) Are there any norms? A raw score is of limited value unless it can be related to the scores obtained by some clearly defined group of patients.
(d) Has reliability been assessed?
(e) Has validity been assessed?

To this list may be added the concept of comprehensibility: are the terms used likely to be clearly understood, and employed in the same sense by both the rater and the subject? Precise definitions of terms are necessary if there is to be any hope of accuracy of use of the scale and generalisability from one setting to another.

Techniques of measurement

Measurement in the behavioural sciences and psychiatry may be considered to be nomothetic or idiographic. A nomothetic instrument has been standardised against the disorder it presumes to measure, and scores for both those with the index disorder and the normal populations should be available. Idiographic measures have no external standard, and conclusions based upon magnitude of score are invalid; they are useful as indications of direction of change.

The techniques on which psychiatric research has relied for the detection and quantification of disorder are:

(a) psychophysiological indices
(b) performance on tests of cognitive function and intellectual ability
(c) direct observation of behaviour or reports on such behaviour, by the subject or others
(d) recording of events, such as frequency of manifestations of a disorder, on a chart or in a diary
(e) self-report – access to the domain of a person's mental state must largely be based upon what that person tells the assessor; access is either by a standardised interview or by the completion of a questionnaire.

Some instruments combine an amalgam of techniques; for instance an anxiety rating scale may be constructed from subjects' replies as to how anxious they feel, whether their thoughts are dominated by any particular theme, a recording of pulse rate, and the rater's assessment of restlessness at interview. This procedure of spreading assessment over several parameters has a certain advantage but rests upon the assumption that the items all relate to the central concept to be assessed.

Psychophysiological procedures

Physiological observations have a long history of application as indicators of psychological states, but their use in the more complex field of psychiatric disorder is beset with problems. Mental disorders are frequently associated with poor physical health. To take a simple example, people suffering from a chronic psychotic disorder are more likely to neglect the fact that wax is accumulating in their ears; if then a test depending on auditory function is used, erroneous conclusions may be drawn if the comparable auditory acuity of the experimental and the control samples has not been established. Many physiological functions used in clinical research are directly affected by anxiety; the law of initial value (Wilder, 1967) predicts that the more abnormal the index before the stimulus, the less likely is it to be affected by the stimulus. Habituation or repetition may affect results and the person who has been exposed to a stimulus a number of times may have a lesser physiological response than a naive subject. The problem of response specificity may influence findings. People react to a specific stimulus with different characteristic physiological responses: faced with a stressful challenge one person may sweat and another person may have a headache. The application of cumbersome apparatus or procedures such as venesection may affect findings.

Cognitive testing

The various tests that depend upon memory function and arithmetical ability have an appealing objectivity. The person's pre-morbid capability will affect performance on such a test, and inferences concerning mental function in the presence of a psychiatric disorder such as dementia must be made with care; samples of subjects may not be comparable in basic intellectual skills. Again, the test situation may seriously affect performance.

Direct observations

The advent of procedures designed to modify behaviour led to the need for improvement in techniques to assess behaviour. Problems abound, including the selection of the target behaviour and the demonstration that it relates directly to the concept or disorder under investigation. Questions arise as to how the test situation may affect behaviour and of the effect of the subjects' awareness that their behaviour is being observed. Of course some type of behaviour such as phobic avoidance or catatonic posturing may be the direct focus of the study, in which case fewer assumptions will have to be made; even so, behaviour may be greatly modified by the conditions in which the assessment is made.

Self-report

In the final analysis, most information concerning mental state rests upon what the subjects choose to say about themselves, and how they construe the purpose of the question and how they should behave in the test. Such information is subject to the process of deliberate or subconscious falsification. Information may be sought by direct interview or subjects may be asked to report on their state by a device such as completion of a questionnaire or making a mark on any analogue line scale. Fortunately most subjects of research procedures are not bent upon deceiving the researchers. Indeed, with obvious exceptions, most subjects of research and clinical inquiry are concerned to give accurate information. All will therefore depend upon the clarity and precision of the procedure. Interviews based upon vague formulations will provide only imprecise information. Much will also depend upon the skill of the interviewer and the ability to encourage the divulgence of personal information.

It is frequently thought that self-assessment rating scales provide less accurate information than assessments made at interviews. The fact is that both are subject to error and ideally both techniques should be used. It may be possible to combine the information into a single score which may even out the errors of both methods, but attention would have to be given to changes in the psychometric characteristics of such a procedure.

Conclusion

Many of the problems of measurement in psychiatric research stem from imprecision of the concepts to be assessed, this inevitably gives rise to poorly formulated attempts to quantify those concepts. Barrios (1988) wrote that: "At the heart of the psychometric model is the notion that all measurement is fallible". This obvious although somewhat bleak conclusion should not prevent continued attention to the process of improving definitions of the concepts and procedures for measuring them. To return to the concept which is the subject of so much research effort in psychiatry, consider depressive disorder. The effort to conceptualise this state has led to a category of 'major depressive disorder' in DSM-III-R (American Psychiatric Association, 1987). Examination of the definition reveals that it is based upon a list of nine symptom states, of which five must be present for the diagnosis. It is noted that these symptom states are not precisely defined and many are presented in 'either/or' terminology: depressed mood *or* irritability, agitation *or* retardation, weight gain *or* weight loss, loss of appetite *or* increase in appetite. From this confusion of symptoms it is obvious that no homogeneous disorder can be defined, and this has drawn forth at least one trenchant comment:

> "The proposed dichotomy [major depression and dysthymic disorder] resembles two poorly focussed slides, projected simultaneously and largely overlapping. Clarity is far to seek. The state of affairs is detrimental to research as well as to clinical practice . . . ." (Van Praag, 1990)

The proposed concept of 'somatic depression' in the draft ICD-10 (World Health Organization, 1989) seems a step closer towards definition of a homogeneous disorder, but this remains to be demonstrated.

Inevitably, instruments based upon ill-defined concepts will provide uncertain information, leading to false conclusions which may seriously affect practice. For instance, the matter of 'depression' in association with bulimia nervosa has aroused interest from a variety of investigative and treatment approaches. A conclusion that 'depression' is present may be based upon a score on a scale; Cooper & Fairburn (1986) discovered that whereas samples of bulimic patients and patients suffering from primary depressive disorder both had high scores on a depression rating scale, the scores in the two samples were composed of different profiles of items composing the scale.

A common procedure in psychiatric research is to define the presence of a disorder on the basis of the presence of a number of symptoms or statements from a long list of such items, paying no attention to the profile of the selected items. Such a procedure is no more meaningful than a definition of a somatic disorder in terms of a random number of symptoms of physical distress.

Instruments for psychiatric research are frequently accepted uncritically; sometimes merely the prestige of the author or the establishment where it was devised is sufficient to over-ride questions concerning its psychometric properties. An example is the once widely used Maudsley Personality Questionnaire. It was proposed that this provided measures of dimensions of personality structure, one of which was called 'neuroticism'. Many subsequent studies supported the view that this dimension was a factor in the aetiology of neurotic disorders. Simple inspection, or face validation, of the instrument might have spared this waste of research effort since it is obvious that many of the items composing the dimension are expressions of the state of present emotional distress. It came, therefore, as no surprise that the measure was found to be incapable of distinguishing trait from state (Ingham, 1966) or that the supposed personality trait of neuroticism probably reflected the subject's level of minor psychiatric symptoms (Duncan-Jones *et al*, 1990).

Helzer & Coryell (1983), in a comment of the inconsistency of findings in biological research in psychiatry wrote:

> "After all the attention that has been given to diagnostic precision in psychiatry in the past few years, it is frustrating to think that differences in results across studies may still be partly attributed to criterion variance."

That is of course an understatement; variations are certainly to be attributed to the criteria, both the constructs and their measurement. Further progress in psychiatric research demands considerable improvement in the precision of what has existed heretofore.

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Drinking, Thirst and Water Intoxication

JOHN L. CRAMMER

Drinking is an activity determined partly by oropharyngeal stimulation and gastrointestinal sensations as well as biochemical changes, and thirst need not be involved. It is sometimes disturbed in mania or depression. Overdrinking (polydipsia) is common in long-stay in-patients, but only gives rise to water intoxication when there is a variable functional renal abnormality such as SIADH causing water retention. In contrast, in affective disorders, disturbance of sodium retention may be seen, possibly representing failure of nervous vascular control as part of the mental illness.

In recent years the sudden unexpected occurrence of an epileptic fit, or onset of coma, in chronic schizophrenics, the mentally retarded, and other psychiatric patients has made psychiatrists aware of water intoxication – a potentially fatal condition which can follow very large intakes of fluid. Under what circumstances do these patients drink excessively, why do they become overhydrated, with minor premonitory symptoms (e.g. Wynn, 1956) and sudden collapse? Do the normal neural and endocrine systems regulating water and sodium balance fail? The concentration of sodium in plasma is normally held steady: what happens in the central nervous system (CNS) when it changes dramatically?

Study of these matters draws attention to psychiatric situations where disturbances of drinking and of salt and water regulation may be seen. In the course of manic attacks there are sometimes periods of increased water drinking as a part of the syndrome of illness (Dingman *et al*, 1957, cases 8, 9; Santy & Schwartz, 1983; Zubenko *et al*, 1984; Crammer, 1986; Keshavan & Keshavan, 1986). Such drinking cannot be explained as simply due to thirst or overactivity, and small disturbances of plasma sodium may be seen. In depressive illness, patients may become severely dehydrated yet only with difficulty be persuaded to drink, under circumstances in which a normal person would experience intense thirst and have difficulty in abstaining from drinking. Hypernatraemia is a factor in acute brain syndromes, particularly in the elderly (Jana & Romano-Jana, 1973; Farley *et al* 1986), where it is probably an indicator of osmotic and ionic disturbance intracellularly, from absent thirst, rather than a cause.

'Polydipsia' (excessive fluid intake), a much wider term than 'water intoxication', occurs not only in major mental illness but in the brain damaged and the chronic alcoholic, in attention-seeking people of neurotic or psychopathic constitution, and for various possible motives. Thirst is rarely advanced by patients as the reason for drinking; some can give no reason or may even deny drinking altogether, but others may drink as a substitute for food to lose weight, or to soothe the nerves (Raskind *et al*, 1975; Lee *et al*, 1989), or to remove poison, or to wash away sinful thoughts, and so on.

The term 'compulsive water drinking' is misleading, because the majority of drinkers experience no compulsion or wish to resist the act but in fact want to do it. An alternative term, 'psychogenic polydipsia', although indicating that it is not part of a recognised somatic illness, misleads physicians into thinking that only a psychologist or psychoanalyst can understand the polydipsia, which is not the case, and is therefore also best avoided. Thirst and drinking have clinical significance in a number of situations; drinking is not quite the simple activity it is often taken to be, and the thirst behind some drinking can have both psychological and somatic causes (Rolls & Rolls, 1982).

Water balance

Life processes take place in water. Roughly two-thirds of body water is intracellular and only one-third extracellular, made up of extracellular fluid (ECF) in the tissues plus the blood volume, which is kept somewhat separate by the osmotic effect of the plasma protein. It is the ECF which contains, with the blood, almost all the dissolved body sodium, and it is the steady level of this which prevents more water from entering the cells to dilute and disrupt them. If the body sodium alone is increased it will attract water from the cells and stimulate thirst; increased water intake then dilutes the ECF sodium to the normal level, but the volume of ECF becomes greater, even to produce clinical oedema, and some of the water also corrects the deficit inside the cells.

If body water alone is increased without change in total body sodium it distributes itself evenly in and outside the cells; this does not stimulate sodium appetite, and there is no oedema, simply dilution.

The kidney is normally extremely effective in getting rid of excess water. Human water balance depends on actively controlling oral intake and urine formation. In the other routes taken by water, the volumes are set by factors outside active control: a little in the faeces, a little more to saturate expired respiratory air, and sweating, which depends on internal and external temperature; and a little water is produced from food. Sodium balance, however, depends only on controlling urine formation. Oral intake can vary unnoticed within very wide limits, without active control; people can learn to like salty food, to harmful excess, and usually experience no salt hunger, except in extreme sodium deficiency.

Kidney controls

Excretion of water and sodium is modified by several processes. Only the first two below modify both together; the next two regulate sodium excretion only; and the last water only. The successive stages are as follows.

(a) A very large blood flow through the kidney, dependent on blood pressure, leads to filtration of plasma at the glomeruli. The volume of filtrate per minute depends on the tones of the afferent and efferent arterioles under the control of vasomotor nerves and is influenced by body posture, cortisol, and drugs such as dopamine and haloperidol.

(b) In the proximal tubules, four-fifths of the filtered water and two-thirds of the sodium are reabsorbed together into the circulation by an active process, which can be decreased by natriuretic hormones, by parathormone, and to some extent by lithium.

(c) The ascending loop of Henle is impermeable to water but actively pumps sodium out of the tubule into interstitial fluid around it; this becomes hypertonic and will attract water to itself at (e).

(d) The distal tubule continues the removal of sodium by an exchange process with potassium; this is principally under the control of aldosterone and provides the fine adjustment of sodium excretion.

(e) The collecting tubules will not let water out unless acted on by antidiuretic hormone (ADH) from the neurohypophysis. This permits water but not salts to pass out of the tubule into the interstitial fluid, reducing its hypertonicity. The tubule fluid thereby becomes more concentrated. A sign that this process has been occurring at least to some extent is given by comparison of the osmolality (or tonicity) of the resulting urine with the plasma from which it was originally filtered. The urine will have a higher osmolality than the plasma, and be more concentrated if ADH has been able to act at all. Note however that the efficiency of this concentrating process depends on the hypertonicity of the interstitial fluid, and in some circumstances, such as in chronic polyuria, the tonicity becomes (temporarily) reduced.

Two healthy kidneys with a full complement of glomeruli and working at full capacity can excrete about 800 ml urine an hour, or 20 litres a day, and can retain virtually all sodium in conditions of sodium deficiency. Damaged kidneys (and elderly kidneys) cannot do as well as this, but it means that the ordinary healthy person can drink enormous quantities and still excrete all the surplus. In diabetes insipidus, where there is a central failure to secrete ADH, a dilute urine of say 12 litres per 24 hours may be seen; where the failure is for normally secreted ADH to act on the kidney collecting tubules the usual daily output is only about 5 litres. Such polyuria tends to dehydrate the body and produce thirst and drinking – a secondary polydipsia, the polyuria being primary. Larger volumes of urine are sometimes excreted when the polyuria is secondary to an enormous oral intake and unconnected with renal changes. Diuretics often act by inhibiting the active reabsorption of sodium from the tubule lumen, thereby lessening the water absorption in the proximal tubule and collecting duct. Solutes which increase the osmotic load in the filtrate, such as glucose, calcium, and salts, also decrease water removal.

Blood as indicator

The fine control of water loss is through the ADH system; fine control of sodium loss is through aldosterone. The osmotic pressure of the plasma, usually representative of the whole ECF, is monitored by sensors (osmometers) in the brain, aortic arch, liver, and probably elsewhere, and signalled to centres for thirst and ADH release. This osmotic pressure is usually 95% due to sodium, but part of it can be due to hyperglycaemia, hypercalcaemia, hyperproteinaemia, or hyperlipidaemia in certain medical conditions; or even in the short term to blood ethanol. Therefore a finding of plasma hyponatraemia is not conclusive of lowered osmolality, which should be measured directly by determination of freezing point. The osmometers are very sensitive to small changes: the threshold for provoking a little ADH release is between 275 and 290 mosmol/kg in different individuals (with an average of about 287 mosmol/kg) and a rise to only 294 mosmol/kg will result in maximal secretion (Seldin & Giebisch, 1985; Kokko & Tanner, 1990).

Sodium content of plasma is registered by cells adjacent to the renal glomeruli, which release renin when hyponatraemia begins to develop. This in turn creates angiotensin, stimulating the thirst centre directly but also more immediately the adrenal cortex, which then liberates aldosterone to promote sodium–potassium exchange in the distal tubules, with sodium retention.

All these hormones can now be measured in blood, but in everyday differential diagnosis of polydipsia and suspected water intoxication, a determination of plasma sodium level at a time noted in relation to symptoms is of first importance, since a value below 120 mmol/l is diagnostic. If possible a plasma osmolality and urine osmolality should both be done, on urine actually secreted around the time of the plasma sampling, and therefore comparable, to test for the syndrome of inappropriate ADH secretion (SIADH). The plasma protein level and a haematocrit analysis of whole blood are indicators of blood volume, reduction in which can stimulate thirst.

Stimuli to drinking

The act of drinking is initiated by one set of circumstances, but its continuation and ending are guided by other signals (Rolls & Rolls, 1982). It may be a response to a dry mouth or to a sensation of thirst, or to accompany solid food, or a learned habit of daily routine, or a sought pleasure, or a conditioned learning, positive or negative. Dehydration will provoke drinking even before thirst is experienced, and a sodium or potassium deficit in addition may influence the choice of drink towards something salty or (for potassium) to a fruit juice. Thirst itself is stimulated directly by angiotensin, by hypernatraemia, by hypercalcaemia and by hypokalaemia (Fourman & Leeson, 1959).

Continuation depends on oropharyngeal stimulation, not only taste but temperature and the feeling of liquidity, which may all be pleasing: particular flavours come to be preferred, and ordinary water also has its taste. Gastric and vascular sensations also play a role; this is particularly evident in drinking spirits such as vodka, schnapps and kirsch, which are usually drunk in a gulp.

Drinking to resolve a dehydration is usually quick and is complete before there has been time for the plasma sodium to be corrected and tissue fluids replaced. The correct amount seems to be taken in anticipation, and this seems to be related to gastric distension and the stimulation of sensors in the duodenum, hepatic portal system, and elsewhere. Thus drinking water, like drinking coffee, beer, wine and even spirits, is sustained by signals in the mouth and throat that anticipate the later reward of satiation, or CNS sedation or stimulation. These signals provide a point for psychological or pharmacological attack in manipulating drinking.

Polydipsia and water intoxication

Many people produce about a litre of urine in 24 hours, corresponding to an intake of say six cups of tea (at 120 ml each) and a tumbler of water. If such people suddenly produce 1.5–2 litres in 24 hours this is a polyuria which might be due to an extra litre or more (nine cups of tea) drunk in the day, which could be called a polydipsia.

Relatives and nurses may not see when an individual drinks more than usual, or may not think to comment on it unless directly asked, not realising its significance. It is therefore very difficult to learn the incidence of polydipsia among psychiatric patients, even in hospital. Cases are most often discovered only when a patient has an unexpected fit or becomes comatose. A blood specimen taken at this time or very soon afterwards will show a plasma sodium level of less than 120 mmol/l (normal about 140 mmol/l), and water intoxication is diagnosed. Water has not simply been drunk in quantity, whether observed or not, but it has been retained instead of being fully excreted. This could be because the drinking has been fast, but mostly proves to be because of a renal abnormality. However, in most cases severe fluid restriction is applied after the fit, large volumes of dilute urine are passed, and the patient recovers. This is because the renal malfunction leading to retention is usually variable, and always minor, only brought to notice by extreme drinking. Inquiry will show that the polydipsia has been going on for some time. Quite often it will resume after recovery from intoxication (Singh *et al*, 1985; Bourgeois *et al*, 1985).

Excessive drinking where the plasma sodium remains around 140 mmol/l will not produce any dramatic symptoms, and certainly in the short term does not matter. It is when the kidney starts to function suboptimally (see below) that the risk of water intoxication begins. Most psychiatric patients do not have renal disease or endocrinological disorder, but seem physically healthy. Among them, attempts to detect those at risk of polydipsia with retention by a screening method suffer flaws. Urine specific gravity and plasma sodium concentration have been used, but a low specific gravity of the early-morning urine on successive days may be due to organic conditions, and a normal specific gravity may lead to a true case of polydipsia being missed, as abnormal signs appear only later in the day (see below). Hyponatraemia also occurs in various medical conditions: it will not arise in polydipsia unless the blood is drawn in the afternoon. Questioning all staff, and then further observation, is the most certain way of finding water drinkers. When this is done, about 10% of long-stay patients may be found to be drinking large amounts of water, the majority of whom will have a diagnosis of schizophrenia, although a few may be manic-depressives or brain damaged. This could of course simply reflect the fact that long-stay patients are most often schizophrenic. However, it is interesting that polydipsia with water intoxication also occurs in the mentally handicapped. Bremner & Regan (1991), in a survey of an 800-bed mental handicap hospital, found cases primarily among those patients who carried a second diagnosis of schizophrenia or autism, and not among the mentally retarded alone, however low their IQ.

Polydipsia (water, tea, beer, etc.) certainly occurs among people not in hospital, and may lead to intoxication whatever their psychiatric diagnosis, if any (Lee *et al*, 1989). It would be a mistake to assume all have the same pathology because of a similar end-result, even when physical causes - renal disease, endocrine and cardiac trouble, drug effect (e.g. carbamazepine) - have been excluded. However, in practice most research has been conducted on schizophrenic in-patients, and what follows applies primarily to them, although possibly it is of wider application.

Surveys show that polydipsia is much commoner than water intoxication. Those liable to intoxication only get attacks rather rarely, in spite of frequent drinking, and they often give a history of some years of drinking before their first attack. To study them with only minimal restriction of their liberty, it is useful to weigh them several times a day. If they are retaining some of the fluid they drink, this will show as weight gain, perhaps as much as 0.5 kg per hour, and the gain goes in step with fall in plasma sodium (Delva & Crammer, 1988). There may be a gain of several kg in the day, and a gain of more than only 7% of the basal body weight (the patient's early-morning weight) brings the sodium level to below 125 mmol/l, into the danger zone. Only then is it necessary to start restricting drinking for a few hours. This can be done amicably, whereas 24-hour restriction is difficult. Patients vary in their drive to drink, and while a few can be persuaded to moderate it, most will not, or cannot, and some will go so far as to drink bathwater or urine if they can get nothing else.

Weighing has revealed a diurnal pattern of drinking and retention. The drinking begins around breakfast time and then continues through the day, in a variable but excessive way, until the evening. From about 5 p.m. the weight may start to drop again (retention lessens), and there is no drinking at night. During the night hours the excess fluid is voided (with a risk of bed-wetting) and by early morning the patient's weight has returned to its basal norm and the plasma sodium has returned to normal, or near normal if the chronic polyuria has produced some defect in renal concentration. This is why early-morning screening for hyponatraemia may miss cases of potential water intoxication. It is to be expected that different individuals will have different patterns of drinking and retention, but in fact the same individual varies from day to day, which is no doubt why attacks of intoxication are uncommon. Each day the water retention starts from baseline, and each day is a fresh risk of trouble, but this is not cumulative. Hyponatraemia of no lower than 130 mmol/l produces no symptoms.

It is possible to collect urine from these patients, although difficult to collect complete specimens except over short periods (2 hours or so). However, it is clear that volumes of 5-20 litres may be passed in the 24 hours. The collection of patients' urine seems to lessen their scale of drinking, to judge from the weight charts. It becomes clear that the kidneys are not excreting water at a constant high rate, but usually at far below the 800 ml per hour quoted above. If osmolality of a timed urine specimen is compared with the osmolality of a plasma specimen drawn during the secretion of the urine, it is often found to be higher than the plasma osmolality, indicating some urine concentration has occurred and suggesting that ADH has been acting, when, because plasma osmolality is below 270 mosm/kg, there should physiologically be none (i.e. SIADH).

Direct measurement of ADH in plasma and urine has now become possible, and two studies (Goldman *et al*, 1988; Delva *et al*, 1990) have found ADH at low plasma osmotic levels when in normals it would have been absent, but that this by itself was unable to explain the observed water retention. Indeed, SIADH did not appear to be always present, and Smith & Clark (1980), in a survey of 21 cases, on purely osmotic grounds found only three cases of SIADH. The fluctuating abnormality of water retention may have several causes and still remains partly an enigma.

The excessive drinking, far beyond that needed, is itself an abnormality, probably the primary one. A normal person finds it quite difficult to swallow a litre of water in 20 minutes, partly because of the gastric fullness, and to do so hour after hour is even harder. The normal switch-off to drinking via the gastric and related sensors may perhaps be absent in these patients. A number of authors observed the polydipsia to increase when the psychosis was worse, and to lessen when the patient became less disturbed. It seems to lessen when the patient is involved in some activity. Sometimes the drinking declined when neuroleptic dosage was increased (Hobson & English, 1963; Dubovsky *et al*, 1973; Raskind *et al*, 1975; Vieweg *et al*, 1987; Bremner & Regan, 1991). Is water drinking anxiolytic? Lee *et al* (1989) reported an out-patient who found it so. Perhaps oral stimulation is soothing. If so, it is somehow learned that a particular taste is especially to be desired, because water drinkers seem as particular as some tea drinkers or beer drinkers in what water they drink.

Vieweg *et al* (1987) thought water intoxication might be a late development in schizophrenic pathology, and others have suggested an analogy with tardive dyskinesia or tried to relate it to some side-effect of phenothiazines; perhaps it lessens subjective akathisia. None of these explanations seems very satisfactory, and none could possibly apply to all cases. As far as long-stay in-patients are concerned, institutionalisation itself might be a cause, in particular the vitamin deficiencies (of ascorbic acid and vitamin D) of the hospital diet, or the poverty of environmental stimulation.

Most treatments have aimed at the abnormal ADH secretion, blocking its action on the kidney with demeclocycline or its release from the neurohypophysis with naloxone or other drug, but there is at best a very modest result and the polydipsia remains the main problem. Clonidine can block drinking activity in animals. Would an anaesthetic-containing chewing-gum prevent oropharyngeal satisfaction and continuing drinking, or would flooding with a strong alternative taste divert the drinking drive? At present the monitoring of weight, trying to occupy the patient, and increasing the neuroleptic seem the best established steps in management.

Long-continued polyuria may bring complications: hydronephrosis, bladder distension, gastric dilatation, and osteopenia and bone fractures (Delva *et al*, 1989) linked with calcium loss in the urine. Older attempts to improve renal function to excrete more water by using diuretics which enhance sodium loss made the hyponatraemia worse, while giving hypertonic saline as an osmotic diuretic was very likely to enhance fluid retention as oedema, especially in the lungs. Some of the deaths ascribed to water intoxication were probably due to injudicious treatment of this sort. The best treatment of water intoxication appears to be to stop all fluid intake and await urinary excretion. Over-rapid correction of hyponatraemia is said to be the cause of the pontine demyelination syndrome (Kokko & Tanner, 1990).

Drinking other liquids

Those who drink large amounts of beer (5 litres a day) have shown hyponatraemia and symptoms suggestive of oncoming water intoxication (restlessness, apathy, drowsiness, poor concentration). Beer lacks sodium, and failure to take sodium-containing food produces a sodium deficiency sufficient to lower renal blood flow and so lead to fluid retention (Demanet *et al*, 1971; Hilden & Svendsen, 1975). Alcohol itself is an inhibitor of ADH secretion; acutely in the blood it can act as an osmotic solute, stimulating thirst, and dehydrating tissues.

Coffee and tea drinkers take xanthines which may increase glomerular filtration and promote sodium loss in the tubules. It is not clear that these effects are ever of clinical importance.

Water and electrolytes in psychoses

Twenty-five years ago there were two series of researches on putative changes in sodium metabolism in manic–depressive illness, which with new laboratory methods were a bid to penetrate the pathology of the illness. One used radionuclides and measures of body fluid volume to study changes in intracellular sodium and changes in penetration of sodium through membranes into cerebrospinal fluid (CSF) or saliva. The other used the red cells of the blood as model cells to analyse changes in the sodium pump of the tissues, which ejects intracellular sodium with the help of the enzyme Na–K ATPase (Naylor *et al*, 1980). For a moment it seemed as if a fundamental breakthrough were about to occur, with putative changes in intracellular sodium during depressive or manic illnesses. But technical difficulties, and problems of interpretation, put the results in doubt, and interest declined as amine-transmitter theories blossomed. It is difficult now to know what was firmly established, beyond the difficulties of marrying laboratory measures to clinical situations. These difficulties at least have become much clearer.

Some difficulties arise from the lack of pathological homogeneity in a group of patients brought together simply for a similarity of behavioural symptoms, and not necessarily all at the same stage of syndrome evolution either. A depressive patient may be metabolically different during the first weeks of illness, in mid-illness, and at the recovery phase. An indubitable biochemical abnormality might be part of the cause of the illness, but will often be secondary – a consequence of changed appetite or sleep or exercise. Or it may be that the abnormality is itself another sign of the neurological disturbance which alters appetite, sleep, depth and frequency of breathing, etc., in the mental illness.

Detailed longitudinal studies of individual patients, keeping watch on a range of clinical variables in step with endocrine and other measures, is a laborious way of overcoming some of the difficulties. There have been few such, and they are as yet not free from fault either, but they have produced some pathological facts which need to be fitted into our understanding of psychoses. (For a brief review of early work see Crammer (1962).) Disturbances of thirst are seen in both mania and depression, and might perhaps be related to amine depletion. A noradrenaline step has been proposed as essential for experiencing thirst: if noradrenaline is processed abnormally in depression, it will not be surprising if thirst is abnormal too. Mania has the appearance of hyperdopaminergia, and dopamine is said to be involved in drinking. But the precise role of amines involved in human drinking is still unsettled.

Some patients, even when drug free, may lose body weight rapidly in association with one phase of their illness and gain it rapidly at another phase. Changes of 0.5–1.0 kg in 24 hours go beyond what can be achieved by fasting or overeating, and imply change in body water content (Crammer, 1983), and the sudden onset of such a change, and its consistent duration over two or more days, when nothing has obviously changed in the patient's environment, is a physical sign demanding explanation. Sometimes a weight gain is so marked it produces visible oedema, as it did in a manic patient reported by Keshavan & Keshavan (1986). More often the gain is invisible to the eye, but it may be possible by a metabolic study to demonstrate sodium retention at this time (Crammer, 1986).

Likewise, in weight loss, the skin may lose its full, smooth look, and veins become more visible (Crammer, 1959, case 2), or it is possible to demonstrate an increased urine volume containing extra sodium excreted at this time when the weight drops. In Crammer's (1986) case there appeared to be a 6 kg difference between the patient's weight at the height of manic phase and the trough of depression. In a metabolic balance experiment, sodium began to be retained from the very start of the manic episode, and after two or three days the patient became thirsty and began also to retain water and gain weight. At this time the plasma sodium level remained steady but the haematocrit reading dropped gradually, suggesting an increasing blood volume. From the switch into depression onwards the weight began to fall again, there was natriuresis, the plasma sodium level rose about 5 mmol/l and the haematocrit reading increased by 5%, but there was no thirst. It seems clear that in this woman fluctuations in her sodium balance and ECF volume took place in connection with swings in her mental state. Her kidneys were changing their excretion of sodium seemingly 'inappropriately', or rather there was a change in sodium regulation. From this point of view it is interesting that there was at the same time a change in vascular regulation, a small increase in blood pressure, and a reversal of the pulse rate's response to postural change, from the very beginning of the manic phase, before any of its behavioural signs had developed.

These changes are not causative of manic–depression, nor, so far as can be seen, are they consequences of manic–depressive behaviour; they are more like responses to a change in nervous control, signs of neurological impairment analogous to pupillary changes in the eye. If so they are a physical sign of the mental illness, and as such should have diagnostic value and indicate a brain area of disturbance and pharmacological sensitivities.

Not all manic patients have thirst, oedema may be very rare, and weight changes large enough to stand out are rare also. We do not know about vascular changes, or blood chemical changes, because these are rarely looked for and most often would be blurred by an early start of psychotropic drug treatment. However, a few cases have been described, enough to justify a search for more and exploration of their differential diagnostic value. Weight changes suggestive of ECF change are seen in catatonic schizophrenia, in depression, and during the action of some psychotropic drugs. Sodium regulation may be disrupted in particular disorders, as water regulation appears to be.

Changes in blood volume (i.e. in the amount of blood available to fill the volume of the intravascular space, or changes in the size of that space) can be linked to sodium and water regulation, and to change in cerebral blood flow, which might influence psychiatric symptoms. This is probably the way intravenous barbiturate rapidly arouses the patient in catatonic stupor. Von Stockert (1958) reported the case of a man with a regular 48-hour cycle: 19 hours of talkativeness alternating with 29 hours of stupor. During the stupor he had a natriuresis and haematocrit showed a fall in blood volume. When, just before the next stupor was due, he was given an intravenous infusion of dextran to maintain his blood volume, the onset of the stupor was delayed by four hours. A similar infusion at the height of stupor 'woke' him for 20 minutes (but control infusions were not tried). It looks as if maintaining blood volume when natriuresis would have lowered it may have altered mental state.

The possibility of useful answers to questions of drinking and thirst, and of sodium and water regulation in psychiatric situations, increases with new investigative techniques in cardiovascular, renal, and endocrinological medicine. But the complexities are such that it is only through collaboration between specialists in these fields and psychiatrists that progress will be made. It is an area for the fusion of psychological and somatic medicine.

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Pathways to Psychiatric Care in South Manchester

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Of 250 patients newly referred to the mental illness services of South Manchester, almost two-thirds were referred directly by their GPs; a further third were referred by hospital doctors. Non-medical sources of referral accounted for only 2% of new cases. Patients with somatic problems had the longest interval between seeking care and referral to the psychiatric services. Being employed was associated with a longer delay before seeking care; among women, those living with their husbands or children had longer total intervals between the onset of the problem and arrival at the psychiatric services.

This paper draws from the results of a study co-ordinated by the World Health Organization (WHO) and carried out in collaboration with centres in Cuba, Czechoslovakia, India, Indonesia, Kenya, Mexico, Portugal, Pakistan, the People's Democratic Republic of Yemen, Spain, and the UK. We describe the results of the study carried out in Manchester in the UK. A full report of the study in all centres has been prepared for publication (Gater *et al*, 1991). Further details about the conduct of this work can be obtained from RG or from the WHO (Division of Mental Health, World Health Organization, 1211 Geneva 27).

The referral pathways taken by patients receiving services from a mental health professional (MHP) are seldom documented in a systematic way. Goldberg & Huxley (1980) proposed a model for considering the pathway to psychiatric care, which assumed that patients who will eventually be seen by staff in a department of psychiatry start by consulting their general practitioner (GP), and are then referred to the appropriate MHP. It was appreciated at the time that some patients came into care by following other pathways, but data were not available to address the size of this effect.

In 1988 the WHO proposed a four-year programme of research aimed at improving the quality of mental illness care available in community settings. A necessary preliminary study in the first year involved local investigators producing a 'pathway diagram' in order to document the complexity of the referral network and the relative size of the various pathways. The programme of research aims to develop more intensive studies at important points in the referral pathway, with a view to the design and assessment of training courses for staff, and the introduction of new treatments for patient groups who can be identified as being in need of additional service.

The present paper reports the construction and analysis of a pathway diagram in South Manchester. The survey allows us to address a number of ancillary questions concerning the referral process. Firstly, the relative intervals or delays associated with various pathways to care are of interest. Intervals can be broken down into: the interval between first experiencing symptoms and seeking care; the interval between first seeking care and finally being referred to a MHP; and the time waiting to be seen by the mental illness service after referral has been made. It is possible to study the effects of sociodemographic variables on these intervals, as well as clinical variables such as nature of presenting complaint, change in the presenting complaint as the patient progresses along the pathway, and eventual diagnosis.

Secondly, if data are collected for a calendar month, and the service is the only source of mental health care for a district with a known population, it is possible to make an approximate estimate of the inception rate for psychiatric illness treated by the service.

Method

All patients referred to the mental illness services in South Manchester between 1 February and 1 March 1989 were assessed for their eligibility to enter the study. Those who were starting a new episode of care (i.e. those who had not sought care from the mental illness services during the previous year) fulfilled the entry criteria. A daily check was made at all points of contact with the service to ensure that all newly referred patients were traced including those seen in the community, on medical wards, and outside normal working hours. The mental illness service provides care for the full range of psychiatric disorders. In addition to general adult psychiatry and psychology departments there is a psychogeriatric unit, an alcoholism treatment unit, a recently established post in child psychiatry, and visiting psychiatrists carrying out regular weekly clinics in forensic, addiction, and psychosexual psychiatry. Neighbouring services and the local private psychiatric services were asked for details of any residents of South Manchester first seen by them during the study month.

Patients entering the study were interviewed by a research assistant using a specially prepared 'encounter form'. The encounter form takes between five and ten minutes to complete. It is used to gather systematic information about the sources of care used by patients on their way to seeing the MHP. The profession of each previous carer is recorded, along with the length of time since the patient was first seen, the source of referral, the main problem presented, the main treatment offered, and the duration of the patient's journey to the carer. In addition, the ICD-10 diagnosis (World Health Organization, 1986) made by the MHP is recorded, along with the total duration of symptoms, and basic demographic data, including age, sex, marital status, occupational status, Registrar General's social class, the number of people living at home, and the number of children. If it was not possible to complete an encounter form (for example on patients who were seen for the preparation of a court report), a brief record was made of the profession of the referrer, duration of symptoms, main problem, and diagnosis.

Each research assistant attended a one-day training course on the use of the encounter form, which included role play, interviews with patients, and video feedback. Patients seen by the psychogeriatric team or by clinical psychologists holding clinics in local health centres had encounter forms completed by the MHP who first saw them.

The routes taken by individual patients have been combined to produce a 'pathways diagram' showing the referral paths taken by patients in the course of their illness. The proportion of patients taking each step on the pathway and average intervals occurring at the more commonly used steps have been mapped on the pathways diagram. Time intervals have been compared according to presenting problem, diagnosis, and demographic characteristics. Statistical analysis of intervals in the different groups was carried out with Kruskal-Wallis one-way analysis of variance using the Statistical Package for the Social Sciences.

Results

Two hundred and sixty-six patients starting new episodes of care were traced. Encounter forms were completed on 107 men and 143 women. Brief forms were completed on the remaining 16 patients; these 16 differed from the main body of the study in the following ways. They had different last ports of call: nine were last seen by a solicitor; and three were referred directly (one by a mutual friend and two came from medical families). They also had more depression-related problems and a diagnosis of mood disorder was made for ten of them. Four were diagnosed as having post-traumatic disorders. The results presented in full are based on the 250 patients with complete encounter forms.

The mean age was 41 years (range 7–94). Most were married (38% married and living together; 19% married and living apart; 33% single; 10% widowed). Just over half came from social class III, 27% were social class IV or V, and 20% were from social class I or II.

Half the patients had their first contact with the mental illness services in the psychiatric out-patient clinic, and a further 5% were admitted directly to the psychiatric wards. The remainder made their first contact outside the department of psychiatry. Twenty per cent were seen at their own home (mainly elderly patients being assessed by the domiciliary orientated psychogeriatric service). Nine per cent were seen by psychiatrists or psychologists holding clinics in local health centres.

The pathways diagram (Fig. 1) shows the commonly used routes to psychiatric care. Carers have been included only if they featured in the care of at least 2% of patients. The diagram is dominated by the path going first to the GP then straight to the psychiatric services. The second most common step is from the hospital doctor to the psychiatric services. The routes to the hospital doctor are more variable, most going via their GP or the casualty department, but in 8% of cases the hospital doctor was the first source of care. The three other carers in the diagram (social workers, community psychiatric nurses and counsellors) are involved in only a small minority of patients. Seventeen other sources of care, consulted by less than 2% of patients, are listed in the legend.

The first port of call for 90% of patients was a doctor, usually a GP, less often a casualty doctor or a hospital doctor, and very occasionally a doctor practising elsewhere such as a place of work or prison doctor. The few patients who first sought care from non-medical sources chose a variety of carers, headed by social workers and nurses, although together these were first carers for only 4% of patients. Likewise, the last port of call before seeing a MHP was a doctor for over 95% of patients. Among these the GP was predominant; a hospital doctor was the last port of call for over a quarter of patients.

The pathways diagram shows the most commonly used steps on the way to psychiatric care, but it does not indicate the numbers of carers consulted. Just over half the patients saw only one carer before arriving at the psychiatric services. A third had two previous carers. Routes with more carers are progressively less common. Two per cent of patients sought care from six or more carers.

Intervals on the pathway

We present median values as the best representation of intervals because the distribution is heavily skewed and flat. For example, the distribution of the total interval since onset of symptoms ranges from less than one week to over 20 years (skew = 4.7, kurtosis = 25.9); the mode is less than one week; the mean is unrepresentatively high at 134 weeks because of a few patients with extremely long intervals; the median is 34 weeks.

The median interval between the onset of the problem and first seeking care for all patients is ten weeks. Patients presenting first to a casualty department tend to have the shortest time before seeking care, while patients who go first to their GP have experienced symptoms for a longer period (Fig. 2). Once in care, patients move to the

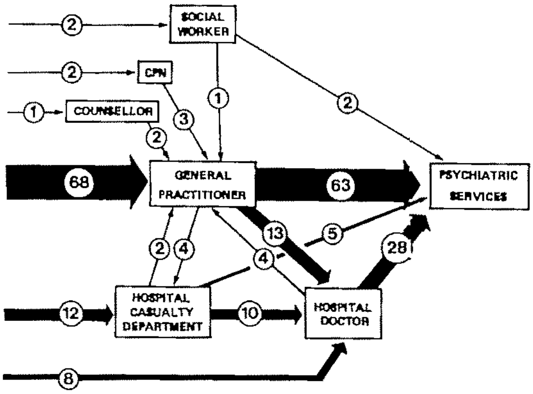

Fig. 1 Pathways diagram for 250 residents of South Manchester referred to the mental illness services. The figures in circles are percentages of this population taking each step on the pathway. The percentages of patients seen by each carer at whatever point on the pathway are: general practitioner = 76%, hospital doctor = 32%, casualty doctor = 16%, social worker = 3%, nurse = 3%, counsellor = 2%, police = 1%, health visitor = 1%. Each of the following carers featured in less than 1%: works doctor, alternative medicine, Samaritans, home help, Alcoholics Anonymous, housing association warden, native/religious healer, educational psychologist, prison doctor, school doctor, insurance company, agoraphobic society, probation, educational welfare service, legal system.

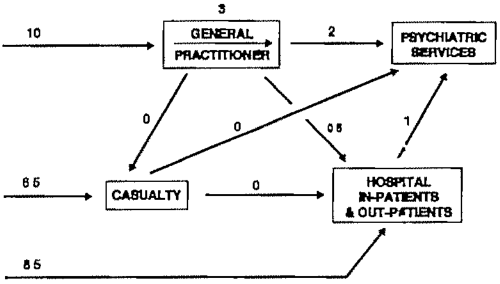

Fig. 2 Median intervals (in weeks) on the pathways diagram.

psychiatric services after a median interval of only four weeks. General practitioners manage their patients for a median of three weeks before referring them to the psychiatric services, and then there is on average a two-week interval before the patient is seen. Referral by hospital doctors usually occurs within a week, and referral from casualty is immediate.

The intervals shown in Fig. 2 represent the median intervals calculated from all patients taking each step. Intervals can also be calculated for patients taking a specific pathway, for example for patients taking the commonest pathway from community → GP → psychiatric services. Patients following this specific route had the longest interval before seeking help (16.5 weeks), a further 5.5 weeks before the doctor decided upon referral, and two more weeks spent waiting to be seen.

Problems presented and their associated intervals

The problems most commonly presented to the first carer are somatic and anxiety-related, followed by depression-related problems (Table 1). There is a shift from somatic problems to depression between the presentation to the first carer and the psychiatric services. Most other symptoms are stable, although there is a small increase in disturbed behaviour.

The intervals vary considerably according to the problem presented to the first carer. Psychotic symptoms have the shortest median total interval of two weeks; self-harm also has short intervals both before and after seeking care. The other problems with clearly psychiatric presentations (depression, anxiety and organic problems) along with disturbed behaviour have total intervals of about six months. Patients with somatic presentations have total intervals which are twice as long; but somatic problems are distinguished from all other presenting problems by their long delay after seeing the first carer. Patients presenting alcohol- and drug-related problems have a very long interval before seeking care and consequently have the longest total intervals. However, once they have presented they move to psychiatric care comparatively quickly.

Diagnoses and their associated intervals

The diagnostic groups split into three broad bands when their total intervals are examined (Table 2). The diagnoses with short total intervals are the psychoses: schizophrenia and organic mental disorders. Next there is a group containing mood disorders, abnormalities of personality, disorders of childhood and neurotic disorders, with total intervals between 20 and 40 weeks. This group also contains patients who were not found to be suffering a psychiatric disorder. Finally, there are patients with mental or behavioural disorders associated with physiological dysfunction and hormonal disturbances, and disorders due to abuse of psychoactive substances, which have long total intervals, largely accounted for by long delays before seeking care. Patients with psychophysiological dysfunction (in this sample mainly psychosexual disorders) have markedly longer intervals while receiving care than any other diagnostic group.

Intervals and demographic variables

Patients aged 65 and over have significantly shorter intervals before seeking care and while receiving care. The median total interval for the elderly is eight weeks, compared with 52 weeks for patients under the age of 65.

No significant differences in intervals between the sexes emerged. This applies not only to the whole group of men and women but also to subgroups compared within each of the marital and employment states, social classes and according to the presence of children at home. For example, men with children at home have similar total intervals to women with children at home.

Significantly different total intervals are found in the different marital states for women but not for men (Table 3). Married women living with their husbands have the

Table 1
Problems presented and their intervals

Problem	Percentage of patients presenting problem		Median intervals in weeks for patients presenting the problem to their MHP		
	to the first carer	to the MHP	interval before seeking care	interval while receiving care	total interval
Psychotic symptoms	4	4	2	1	2
Self-harm	11	12	7	0	7
Depression	15	21	4	5	20
Disturbed behaviour	4	7	2	1	26
Anxiety	18	18	9	4	36
Organic symptoms	9	9	7	2	48
Somatic symptoms	18	9	1	65	104
Other neurotic	3	2	116	23	130
Interpersonal problems	2	2	102	6	208
Alcohol/drug-related	10	10	182	6	260

MHP = mental health professional.

Table 2
Median intervals by diagnostic groups

ICD-10 diagnostic group	Percentage of patients given diagnosis	Interval before seeking care: weeks	Interval while receiving care: weeks	Total interval: weeks
Schizophrenia	3	2	1	4
Organic mental disorders	12	2.5	2	6
Mood (affective) disorders	22	10	4	20
Abnormalities of personality	5	22	3	24
No psychiatric disorder	4	13	3	26
Disorders of childhood/adolescence	8	4.5	6.5	28.5
Neurotic disorders	23	4.5	8	38
Psychophysiological dysfunction	7	140	21	156
Abuse of psychoactive substances	15	92	4.5	208

longest intervals, while widowed women have a relatively short time between the onset of their problem and arrival at the psychiatric services.

Among women, the presence of children at home is associated with a longer total interval (Table 3) and a tendency towards a longer interval before seeking care. A similar trend in men falls short of significance. The presence of other people living at home is not shown to be associated with longer intervals.

Table 3
Median intervals in weeks by demographic groups and sex

	Men		Women	
Median total interval according to marital status				
single	34	$P=0.98$	16	$P=0.02$
married, living together	40.5		52.5	
married, living apart	52		22.5	
widowed	38		4.5	
Median total interval according to the presence of children at home				
no children at home	26.5	$P=0.3$	16.5	$P=0.01$
children at home	52.5		52.5	
Median intervals before seeking care according to employment status				
employed	48.5	$P=0.07$	16	$P=0.04$
not employed	10		4.5	
Median intervals between first seeking care and first contact with mental health services				
social classes I, II	5	$P=0.01$	5.5	$P=0.7$
social class III	12		8	
social class IV, V	3.5		3.5	

Patients under the age of 65 who are employed have median intervals before seeking care which are four times longer than those who are not employed (Table 3). This is also apparent as significantly longer total intervals in the employed. No significant differences emerged when intervals in the employed were compared according to whether or not they were chief wage earners.

A significant difference in intervals between the social classes is demonstrated only in men (Table 3). Men in social classes IV and V have shorter intervals after seeking care than those in social class III.

Intervals on pathways to different MHPs

The 45 MHPs who saw new patients were made up of 35 psychiatrists, nine clinical psychologists and a child psychiatry social worker. The rate at which each professional group saw new patients is derived in Table 4. The child psychiatrist saw 17 new patients during the month. The psychogeriatricians (2 consultants and 3 senior registrars) and the consultants in adult psychiatry on average saw eight or nine new patients. The clinical psychologists, psychiatric trainees and child psychiatric social worker saw three or four new patients.

Comparison of the duration and type of problem presented by patients seeing the different MHPs shows markedly different patterns. The shortest total intervals are found in patients consulting the psychogeriatricians. Most of these patients have organic problems (in two-thirds of patients, dementia) or depressive symptoms. The psychiatric trainees, who offer the first line of contact for urgent referrals, also see patients with relatively short total intervals, most often in patients presenting problems of deliberate self-harm, alcohol- or drug-related problems, or depression. Patients seen by the child psychiatric service have total intervals of about six months, and those seen

Table 4
Patients seen by the different mental health professionals

Mental health professional	No. of staff	No. of patients seen	Monthly rate per professional	Median total interval	Common (>10%) problems	
Child psychiatrist	1	17	17	27	Somatic	40%
					Behaviour	20%
Child psychiatric social worker	1	3	3		DSH	20%
Consultant adult psychiatrist	12	92	8	55	Depression	22%
					Alcohol/drugs	15%
					DSH	14%
					Anxiety	14%
					Psychosexual	14%
Psychiatric trainees	17	54	3	14	DSH	22%
					Alcohol/drugs	22%
					Depression	20%
					Behaviour	13%
					Anxiety	11%
Psychogeriatricians	5	44	9	7	Organic	38%
					Depression	36%
Clinical psychologists	9	40	4	52	Anxiety	55%
					Somatic	15%

DSH = deliberate self-harm.

by consultant psychiatrists and clinical psychologists have experienced problems for a median of one year.

The long interval between the onset of the problem and the first appointment with a consultant psychiatrist or clinical psychologist should be tempered by the finding that the median interval between the patient first seeking care and presentation to these same two professional groups is only ten weeks. Like their trainees, the consultants in adult psychiatry see patients with a range of problems, although consultants see fewer problems of deliberate self-harm, behaviour problems, and alcohol- or drug-related problems. The high levels of psychosexual and alcohol-related problems largely reflects the work of the psychosexual clinic and the alcoholism treatment unit. The greatest concentration of a single presenting problem is seen in those attending the clinical psychologists, of whom over half have an anxiety-related problem.

Area of residence and inception rates

Table 5 shows the diagnostic breakdown of all patients according to whether they were living inside or outside the South Manchester catchment area. Almost a third of the patients were referred from outside the catchment area. Most of these fell into four diagnostic groups: abuse of psychoactive substances, mood disorder, neurotic disorders, and psychophysiological dysfunction. The finding that most patients with abuse of psychoactive substances and psychophysiological dysfunction were from outside the catchment area is not surprising because the clinics at which they were seen are carried out by visiting regional specialists.

Table 5 also shows the annual inception rates in South Manchester and in Salford for each diagnostic group. These figures take into account not only residents of South Manchester treated by the South Manchester National Health Service psychiatric services but also those seen privately or by neighbouring services. The Salford rates have been calculated using the Salford Case Register. This differs from the South Manchester data in that patients seen by services other than those based in Salford are not included. Most of the Manchester patients seen by neighbouring services were suffering from neurotic disorders, so in comparing the two sets of rates it is more accurate to compare the Salford rate for neurotic disorders with a South Manchester rate including only the patients treated by the South Manchester services. This adjustment reduces the South Manchester rate of neurotic disorder to 2.5 per 1000, which remains significantly higher than the Salford rate (1.7) at the 10% level of confidence (Gardner & Altman, 1989). In respect to the other diagnostic groups, the inception rates for the two districts are remarkably similar.

Discussion

The primary purpose of the study was to provide an outline of the main referral pathways to help in the planning of further studies to design and assess training at important points on the pathways to psychiatric care. In addition, it provides an audit of the service provided for new psychiatric referrals and it can be used to estimate inception rates of the more common diagnostic groups. The main limitation of the study is that it only provides information on patients who reach psychiatric care. It does not give any direct data on what care is being provided for

Table 5
Area of residence and annual inception rates

Diagnosis	Total no. of new patients seen by S. Manchester psychiatric services[1]		Annual inception rates[2] (per 1000 residents of all ages based on OPCS estimates)	
	resident in S. Manchester	resident out of S. Manchester	S. Manchester	Salford
Neurotic disorders	38	22	3.1	1 7
Mood disorders	40	20	2.7	2.7
Organic mental disorders	27	2	1.8	1.8
Abuse of psychoactive substances	13	19	0.8	0.6
Abnormalities of personality	11	2	0 8	0.8
Schizophrenia	7	0	0.5	0.7
Psychophysiological dysfunction	3	15	0.2	0.1
Disorders of childhood/adolescence	13	7	0.8	–[3]
No diagnosis made at time of assessment	18	7	–	–
Total	170	94	9.8[4]	8.4

[1] Including patients for whom only a brief 'encounter' form was completed.

[2] Annual inception rate per 1000 = $\frac{\text{No. of new patients in 1 month} \times 12 \times 1000}{\text{Population of South Manchester}}$

[3] Rates of childhood disorders are not available for Salford

[4] Total inception rates for South Manchester exclude childhood disorders to allow direct comparison with the Salford rate.

People with psychiatric morbidity who are not seen by the psychiatric services.

It is clear from the pathway diagram that the main pathway represented by 'community → general practitioner → mental illness service' accounts for almost two-thirds of all patients seen by the service. A further third of patients are referred by hospital doctors in out-patient clinics and ward referrals, as well as a small group of referrals direct from the casualty department. However, it emerges that non-medical sources of referral accounted for only 2% of new patients seen during the survey month. The salient finding to emerge is that being seen by our mental illness services is predominantly a medical matter.

It cannot be assumed that merely because a location on the pathway diagram only refers a small proportion of cases to the service that few cases of mental illness are to be found there: Huxley *et al* (1989) have shown that just over half of the cases referred to Manchester Social Services Department are 'psychiatric cases' as judged by standardised psychiatric assessment (Index of Definition level 5 + derived from the Present State Examination). It can also be seen from the pathway diagram that patients who originally referred themselves to community psychiatric nurses and counsellors in the community were never referred directly to the mental illness services, but eventually came to us via their GP.

The quickest pathway to care is via the casualty department: the median interval between symptoms being experienced and care being sought was only six weeks, and thereafter patients were seen very quickly by the mental illness services. This is due to the urgent nature of problems presenting in casualty: two-thirds were deliberate self-harm referred within a few days for urgent psychiatric assessment. The main pathway – via the family doctor – was also the slowest. This may reflect the non-urgent nature of the problems presented by patients following this route: compared with the general distribution, they contain an under-representation of deliberate self-harm and psychotic problems and an over-representation of depression- and anxiety-related problems.

As might be expected, the shortest total delays were associated with the appearance of psychotic symptoms and self-harm, while illness presenting with alcohol- or drug-related problems were associated with the longest intervals. Once care had been sought, self-harm, psychotic symptoms and disturbed behaviour were associated with the shortest intervals, while somatic symptoms had the longest. In planning the subsequent stages of this programme of research, the findings that patients with somatic symptoms both present the commonest pattern of presentation and have the longest intervals after seeing the first carer are important. They suggest that it will be worth assessing the impact of training courses, for family doctors or hospital doctors, designed to improve recognition and management of somatising patients.

Our results draw attention to some groups of patients who delay before seeking care. Particularly among women, the presence of children at home is associated with a longer total interval. This fits with previous findings that psychologically distressed mothers with more children at home are less likely to consult their doctor (Goldberg *et al*, 1976; Brown & Harris, 1978). Patients who were not employed sought care more quickly than their employed counterparts, and single, widowed or separated women had shorter intervals than women who live with their husbands. These findings are in keeping with the previous observation that isolated people lacking social support use services more readily (Fink *et al*, 1969; Tischler *et al*, 1975*a*,*b*; Goldberg *et al*, 1976).

An intriguing finding is that men in social class III have longer intervals between first seeking care and first contact with the psychiatric services. This appears to be the result of two effects. Firstly, men in social classes IV and V tend to have shorter intervals than those in social classes I, II and III regardless of which problem is presented. This is most noticeable for somatic problems (median interval in social classes IV and V is four weeks compared with intervals of 23 and 26 weeks for social classes I & II, and III respectively). Secondly, more men in social classes I and II present with clearly psychiatric problems like depression, which have relatively short intervals, compared with social class III, where somatic problems with longer intervals are the most common presentation.

Although our results are wholly focused on the process of referral to the mental illness services, the survey has important implications from the standpoint of a medical audit. Firstly, the service provided to certain groups of patients is quickly accessible. It is good to find that patients with schizophrenia and organic mental disorders have short median intervals between the onset of their problems and being seen by the mental illness services. Likewise, patients being seen by the psychogeriatric service, which is the only domiciliary based service, are seen swiftly after the onset of their problems. On the other hand, the long total intervals experienced by those abusing psychoactive substances and those with physiological dysfunction suggest that there may be difficulties for these patients in gaining access to the services. For the former group, the bulk of the delay is between the onset of the problem and first seeking care. This delay may have been exaggerated if patients responded to our question "When did the main problem begin?" with the date they first used psychoactive substances, rather than the time when it first became a problem.

The one diagnostic group with a substantial delay between first seeking care and being seen by a MHP is patients with physiological dysfunction; these mainly comprise patients with sexual dysfunction referred to the psychosexual clinic. All of these said they had received no treatment from their previous carers, indicating a barrier to both active treatment and referral for patients with sexual dysfunction.

Secondly, our results indicate that community psychiatric nurses had not been effectively attached to primary care, as they did not feature as an integrated part of the referral pathway. Shortly after the pathway study was completed, an experimental multidisciplinary community team was established, with each member of the team including community psychiatric nurses interfacing directly with primary care. The function and impact of this team is currently being evaluated.

Finally, by looking at inception rates and comparing these with other centres, we can compare the provision of services for new patients per head of population. In this respect, the services offered to the residents of South Manchester and Salford are remarkably similar, differing only in respect to neurotic disorders.

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Affects as Central Organising and Integrating Factors
A New Psychosocial/Biological Model of the Psyche

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A new psychosocial/biological model of the psyche is proposed, in which the affects play a central role in organising and integrating cognition. The psyche is understood here as a complex hierarchical structure of affective/cognitive systems of reference (or 'programmes for feeling, thinking, and behaviour'), generated by repetitive concrete action. These systems store past experience in their structure, and provide the functional basis for further cognition and communication. Affects endow these programmes with a specific qualitative value (such as motivation), connect cognitive elements synchronically and diachronically, and contribute to their storage and mobilisation according to context. They also participate in differentiating cognitive systems at higher levels of abstraction. These assumptions are supported by recent findings on the role of the limbic and hypothalamic system for the regulation of emotion, on neuronal plasticity, and on the phenomenon of state-dependent learning and memory. Refutable hypotheses are formulated for further research on the interaction of emotion and cognition.

During recent years, psychiatric research has made considerable progress in both biological and psychosocial directions. However, with the increasing sophistication of each specialty, the danger of unilateral reductionism is correspondingly increased. Several current approaches, particularly the general 'bio-psycho-social model' first formulated by Engel (1977), attempt to counteract this danger, although precise ideas about the interaction between psychological, social, and biological elements are still lacking. This paper discusses such ideas, based on a selective survey of recent findings in these three disciplines. These ideas aim to clarify the interplay between affective and cognitive phenomena on the one hand, and intrapsychic and social phenomena on the other, through a synthesis of convergent psychodynamic, sociodynamic, and neurophysiological findings, formerly elaborated in the concept of 'affect logic' (Ciompi, 1984, 1986, 1988*a*,*b*, 1989). Some of the relationships postulated in these earlier studies appear to have been at least partly confirmed on the biological level, thus providing a possible basis for the tentative formulation of a new, inclusive three-level, functional model of the psyche.

The overall conceptual framework is taken from general systems theory and cybernetics (Wiener, 1948; Shannon & Weaver, 1949; von Bertalanffy, 1968; von Forster, 1968; Miller, 1969, 1975). This includes modern theories of the dynamics of complex, non-equilibrium, self-governing systems (related to the concept of 'dissipative structures') and chaos theory (Prigogine & Stengers, 1981; Nicolis & Prigogine, 1987; Gleick, 1988). Other basic concepts include the concepts of autopoiesis (self-regulation) and structural coupling between self-containing and self-regulatory phenomenological domains, such as neuronal processes, outward behaviour, and conceptualisation by an observer; these have been elaborated by Varela (1979) and Maturana (1982). The concept of a 'domain of psychic phenomena', introduced by the present author in 1986, and analogous to the above, is also basic to the proposed model.

The first two sections below present an outline of the relationships between psychological, social, and neurophysiological phenomena that have been discussed in detail elsewhere (see above). The third section reports biological findings that support the resulting three-level model of the psyche.

Relationships between psychological, social, and biological phenomena according to the concept of 'affect logic'

The concept of 'affect logic' is based on hitherto insufficiently acknowledged findings which are common to cognitive psychology and psychodynamics (especially genetic epistemiology and psychoanalysis), showing that emotion and cognition (or feeling and thinking, affect and logic) never occur in isolation, but are always closely combined (Freud, 1895, 1905, 1911; Rapaport, 1950; Gressot, 1955; Piaget, 1981). The concept is also based on the discovery by Piaget that cognitive structures originate in innate sensorimotor 'schemata', which gradually differentiate during childhood through assimilatory/accommodatory interactions with reality, and thus constitute a 'condensation of action' or of concrete experience (Piaget, 1972, 1976, 1977). Consequently, the relationship of cognitive structures to the environment, and in particular to all important interpersonal transactions, necessarily become part of the slowly forming intrapsychic structures. Simultaneously, these become increasingly automatic, internal, and mental.

Since every action contains emotional elements and is ultimately regulated by the pleasure principle (Freud, 1911, 1926), specific affects, positive or negative, are assigned to specific cognitive contents (e.g. persons, objects, places, situations, concepts). The presence of particularly strong or often repeated affects in similar circumstances lead to a remarkably stable connection between certain cognitions and certain emotions. This 'affective constancy' (Piaget, 1981) forms the basis not only for simple conditioned reflexes (i.e. an infinite number of everyday patterns of behaviour) but also for complex 'transference' phenomena in the psychoanalytical sense.

Consequently, in the conceptualisation of 'affect logic', the 'psyche' is understood as a complex hierarchical structure, consisting not only of cognitive, but necessarily *affective* cognitive 'schemata' or 'systems of reference'. On all hierarchical levels, these systems of reference correspond to a synchronic condensation of repeated past actions: they are effectively operational 'programmes' of feeling, thinking and behaving, which store past experience in their structure and therefore represent probably the most important form of memory. At the same time, they provide a functional matrix for all perception and communication.

These basic concepts imply that close relationships exist between the psychological, social, and neurophysiological domains, as mental structures are conditioned by interpersonal processes and the biological substrate of the resulting operational 'programmes' probably consists of corresponding neuronal pathways established by repetitive actions according to the concept of neuroplasticity (see below). At the theoretical level, it is important to realise that affective cognitive systems of reference are indeed *systems* in the sense used in systems theory – they are complex entities formed by mutually interacting and equilibrating elements, as shown by Piaget (1976) for purely cognitive 'schemata'. As a consequence, the general principles of systems theory can also be applied to mental processes: the homeostatic (i.e. structure-maintaining) effect of negative feedback and the morphogenetic (i.e. structure-forming) effects of positive feedback are of particular interest. Under certain circumstances, the latter are presumably capable of provoking sudden non-linear jumps far away from equilibrium, leading to chaotic conditions or to the formation of new 'dissipative structures'.

Organising and integrating functions of affect in the psychosocial domain

Affects (or emotions, feelings, moods, etc. – term covering overlapping phenomena with a commo denominator (Ulrich, 1982; Euler & Mandl, 1983 Mandl & Huber, 1983)) can be defined for th purposes of this article as those phenomena i the psychic domain which are accompanied by peripheral bodily changes (e.g. sympaticotonic o parasympaticotonic effects on pulse, respiratory rate, blood pressure, tone of smooth and striated muscles). Thus, affects always involve the whole body, a notion which suggests a close relationship between 'affect logic' and psychosomatics. The *psychic domain*, on the other hand, can be defined as that class of phenomena which can be present in consciousness in certain circumstances, but are directly accessible only by introspection; these include moods, feelings, thoughts, representations, mental imagery, etc. Their presence in others can only be apprehended indirectly – by having them reported to us, or by reasoning by analogy from our observations – a fact which is often overlooked.

Evidence for the organising and integrating functions of affects comes, firstly from psychoanalytical observations, such as the assumption that, in meeting his/her basic needs, the initial organisation of the newborn's cognitive world comprises a distinction between an 'all-good world', containing the totality of pleasant experiences, and an 'all-bad world', containing all unpleasant experiences (Kernberg, 1976, 1980). Eventually, specific object representations and self-representations with both positive and negative connotations differentiate from these distinctions, through a complex affective cognitive process. However, similar organisations of cognitions can be observed in adulthood, as for instance in the 'condensation' of a large number of cognitive elements into higher classes of abstraction with similar emotional colouring (weed/useful plant, friend/enemy, etc.). Certain emotionally conditioned distortions of cognitive perception concerning social groups, such as whites or blacks, youngsters or old people, Jews or Arabs, which are well known in social psychology are also relevant here (Haisch, 1983).

Additional evidence of the organising functions of affects is provided by Grof's (1985) observation that individual experiences associated with the same kinds of affects (e.g. shame, fear, joy, anger), even if scattered over an entire life time, can be remembered *en bloc* under hypnosis or under the effects of certain drugs. Grof designates such 'complexes' as 'COEX-experiences' (from *c*ondensed experiences). The phenomenon of state-dependent learning and memory (see below) belongs in the same context. Advertising has made wide use of the discovery that storage and mobilisation of cognitive stimuli strongly depend on emotional factors. Selective cognition, in particular during emotional states such as anger, fear, rage, and love, is an everyday observation, described also by Bleuler (1926) under the notion of a "switching function of the affects". Furthermore, we have been able to show (Ciompi, 1988*b*) that affects play a role which goes far beyond mere accompaniment of seemingly purely cognitive processes such as abstraction. In the 'extraction of invariance', which is the core of solving of scientific and mathematical problems by abstraction, common feelings of pleasure or displeasure connect elements that 'fit' or 'don't fit'. Therefore these affects function literally as pointers to solutions. Functional cognitive concepts and theories are invested with positive feelings and dysfunctional ones with negative feelings. Adequately coherent behaviour over time (e.g. the realisation of a project, the building up of a human relationship) is also only possible with a sufficiently stable positive 'affective investment' (cf. Freud, 1926). (In a related context, Janzarik (1988) speaks of the central phenomena of 'actualisation' and 'de-actualisation' of cognitive elements.) If, on the other hand, emotional continuity is lacking, as in psychotic ambivalence, behaviour soon becomes incoherent. Specific prevailing affects resemble specific 'gates' opened by specific triggers (Bandler & Grinder, 1975), leading to specific affective cognitive programmes for dealing with a certain person, a certain problem, a certain piece of work, etc.

The mobilising, organising, and integrating functions of the affects are no less important in the *social domain* than in the individual domain. Affects, as defined above (i.e. collective emotional moods, attitudes, motivations, and value connotations), are not only what move social systems, but what hold them together both synchronically and 'over time', regardless of their size. A society lacking a cohesive emotional basis will inevitably fall apart: concerted, purposeful social action is possible only if based on some shared affect (whether it be fear, anger, joy, or enthusiasm). Such affects are also known to be highly contagious; even subtle affective nuances are rapidly transmitted to individuals, groups, and peoples. The most conspicuous example of this is mass panic or collective hysteria. A related phenomenon is that of social control – a mechanism that serves to maintain social cohesion by eliminating divergent thought, feeling, and behaviour. Generally speaking, positive affects (and in particular love), have binding functions, and negative affects (aggression) have separating and delimiting functions. Finally, the affects also function in the social domain as memory-forming and memory-mobilising 'switches'; they 'attune' and determine, and therefore regulate all social behaviour, simultaneously forming the basis of all social communication.

In summary, in addition to providing motivation and direction for the individual, affects have organising and integrating functions in the whole psychosocial field. They connect synchronically and diachronically what functionally belongs together, thus providing mental programmes with the necessary coherence in the present as well as continuity over time. Simultaneously, they constantly 'affect' and involve the whole body, in the sense that they attune it to the demands of a given situation, utilising all past experience. Moreover, they probably make a decisive contribution to the state-dependent and context-appropriate fixation and mobilisation of memory. In other words, the affects not only function as 'motors' on cognitive elements, as Piaget (1981) presumes, but also as 'switches' or 'gates' and as 'glue' or 'connective tissue'.

Biological aspects

Is such a model also supported by biological findings? In fact, this model corresponds to the basic structural and functional design of the brain. According to MacLean (1964, 1973), three large segments of the human brain can be distinguished phylogenetically.

(a) The 'reptilian brain', including the striatal complex (basal ganglia, corpus striatum, globus pallidus) and portions of the brain-stem and cerebellum. Apart from such basic vital functions as regulation of respiration, blood pressure, body temperature, sleep–waking rhythm, arousal, and orientation, it primarily regulates pre-programmed behaviour (instinctive acts).

(b) The 'lower mammalian brain', characterised by a developed limbic system (gyrus cinguli, hippocampus, amygdala, septum, habenula and hypothalamus). This is a cortical and subcortical 'border zone' representing a highly differentiated hormonal/biochemical regulatory apparatus for the flexible modulation and context-appropriate attunement of the organism as a whole, in accordance with its changing needs. It also functions as a central switching and regulatory area of 'affects' (as defined above).

(c) The 'higher mammalian brain', is distinguished by a highly developed neocortex, most pronounced in human beings, and associated with all higher cognitive functions. This development, in particular, "opens up completely new ways of suppressing routine forms of behaviour, whether inherited or acquired, on the basis of a subtle, dispassionate analysis" (Ploog, 1986).

MacLean's distinctions support the hypothesis of a central role played by affective regulations as a mediator between basic vital functions and higher cognitive processes: on the one hand, they influence and modulate automatic instinctive behaviour, and on the other, they form the foundation of higher intellectual achievements. At the same time, they regulate the 'mood' of the entire peripheral body, through the hormonal apparatus.

This interpretation becomes even more plausible when the functions of the limbic system and its connections to other regions in the brain are considered. In recent years, the importance of the limbic system both in the regulation of mood and in emotional and instinctive behaviour – first postulated by Papez (1937) and by Klüver & Bucy (1937, 1939), and later by MacLean (1952, 1958) and Nauta (1958, 1973) – has become increasingly evident (Koella, 1984; Nieuwenhuys, 1985; MacLean, 1986; Doane & Livingston, 1986). Not only in the hippocampus and the amygdala, but also in many other areas of the limbic system (e.g. the gyrus cinguli, the region of the septum, the nucleus caudatus, and the frontal bundle), cell groups have been discovered whose stimulation leads to pleasant or unpleasant feelings (anger, fear, joy, pain, sexual arousal, etc.). Globally, the structures providing pleasurable feelings seem to function as an integrated 'award system'. Moreover, the removal or destruction of certain limbic structures brings about profound emotional changes; a familiar example of this is the Klüver–Bucy syndrome (hypersexuality, loss of fear and aggressiveness, excessive oral exploration), which is caused by lesions in areas of the uncus, amygdala, and hippocampus. According to MacLean (1986), the feelings and drives activated by the amygdala mainly subserve self-preservation (the search for food, feeding, fighting, and self-protection); those activated in the region of the septum subserve the preservation of the species (procreation), and those activated by the cingulum are related to maternal–offspring contact (i.e. maternal care, fear of separation, isolation call) and (very important to human development) play.

Furthermore, contrary to Papez's (1937) original idea of the limbic system as a self-contained 'reverberating' circuit, it has been shown by more recent investigations to function in close co-operation with many other regions of the brain, particularly the pre-frontal cortex, hypothalamus, mid-brain brain-stem, and even the spinal cord (Koella, 1984 Nieuwenhuys, 1985; Poletti, 1986). Nieuwenhuy ascribes to the neuromediator-rich nuclear region the 'limbic axis' (Nauta, 1973) – the central regulation of neuroendocrine and visceral effector mechanisms on the one hand, and of affective and motivationa behaviour, on the other. Poletti (1986) sees the limbi system as an amplification and refinement of th hypothalamus, and assumes that it can potentially modulate all the functions of the brain-stem, including the fight-or-flight mechanism, pain suppression sexual development, and autonomic and endocrine activities. According to Mishkin & Appenzelle (1987) the amygdala endows sensory stimuli with specific emotional qualities – gives them a qualitative colouring. The recently discovered non-synaptic 'paracrine' transmission of stimuli across extracellular spaces, and possibly even across the ventricle could also be connected with a global attunement of larger regions of the brain (Nieuwenhuys, 1985).

Another fact supporting the regulatory and integrative effects of the physiological substrates of affects on various neuronal systems, as is also assumed by Wexler (1986), is that practically all the important neurotransmitter systems are involved in the neuronal connections projecting from the limbic system (especially the noradrenergic, serotonergic, dopaminergic, GABA-ergic, glutaminergic and the polypeptidergic systems). This is important in the present context, since most neurotransmitters also influence or mediate affect. With the limbic system serving as a junction, these neurotransmitter systems connect, longitudinally and in stages, some of the most diverse, widely separated regions of the brain. They would therefore be perfectly able to integrate extended neuronal systems into extended operational entities, according to the subject's emotional state.

Another piece of evidence for the key regulatory role of the affects can be found in the relationship between the limbic system and memory, and in the role of neuroplasticity in memory formation. The fact that memory and learning capacity are dependent on the integrity of certain limbic structures, particularly of the hippocampus and amygdala (Mishkin & Appenzeller, 1987; Barnes, 1988; Squire & Jola Morgan, 1988) initially led to the belief that the very 'centre of memory' is located in these areas. Meanwhile, it became increasingly clear that the 'store of memory' cannot be located in a circumscribed region of the brain, but is much more probably scattered over wide areas of it. The cerebellum, for example, is known to be involved in motor memory performance (Lisberger, 1988).

his would be a necessary consequence of the plasticity' of all areas of the brain ('plasticity' nplying that neuronal transmission is permanently acilitated and thus fixed by repetitive stimulation) Groves & Schlesinger, 1979; Changeux & Konishi, 987; Greenough & Bailey, 1988; Morris *et al*, 1988). his is brought about in part through electrohysiological changes in (habituation and sensitisation f) the synapses, and in part through the branching ut of new dendritic connections between individual erve cells to meet functional demands. At least some f the electrophysiological processes that endow ingle nerve cells, and even single molecules with memory' have recently been discovered (Crow, 988; Gustavson & Wagström, 1988). Through europlasticity, repetitive environmental stimuli ecome fixed in the brain, so that in a general sense, he real 'memory' is the structure of the neuronal etwork itself, as it is acquired by action. Moreover, f we relate the various findings on memory to ach other and include the clinically obvious elationship between memory and affects, the ypothesis is emerging that an 'affective imprint', nediated through the limbic system and its neuroransmitters, is needed both for the fixation and for the activation of the extended neuronal pathways representing memory storage. At the least, his single assumption would be capable of plausibly onnecting, on the psychological, social, and biological level, many phenomena that initially seem heterogeneous, including the 'switching power of affects'.

The hypothesis of integrative functions of affects is further supported by a series of computerised electroencephalographic studies concerning state-dependent learning and memory (cf. Koukkou & Lehmann, 1980, 1983; Koukkou *et al*, 1983, 1986; Koukkou, 1987). These show that learning and memory performance can vary greatly, depending on the motivational/functional state of the brain (sleeping or waking, dreaming, childhood or adulthood, drug-induced, hypnotic, or psychotic states). Simultaneously, there are more general differences in information processing (e.g. concerning the form, strength, and duration of the orientating reaction). Information which has been stored in a certain functional state is best remembered in the same state; however, information stored in highly differentiated states (e.g. in the normal waking state) remains available in less differentiated states (e.g. in dream or hypnotic state), but not vice versa (Overton, 1979). Therefore, Koukkou *et al* propose that specific memory stores and specific modes of information processing are activated or blocked by specific motivational states (of the brain).

In analogy, we propose that differential emotional states, such as anger, fear, joy, love, etc., also correspond to different functional states of the brain. This hypothesis is also supported by the recent successful differentiation of five 'basic emotions' (intention, fear, mourning, joy, aggression) by electroencephalographic spectral analysis, validated by reliable clinical differentiation of the same affects (Machleidt *et al*, 1989). When linked to the findings on state-dependent information processing, this work seems to provide an interesting methodological basis not only for a further clarification of the hypothesis of register-like switching effects of emotions on certain cognitive contents, but also of other relationships between emotion and cognition which are postulated by the concept of 'affect logic' (see below).

Finally, certain comparative ethological studies carried out on reptiles or on lower and higher mammals, reported on by Ploog (1986), are of interest. Through the use of vocal markers of mood, which are reliably attributable to specific emotional states, electrical stimulation experiments on the limbic system of the squirrel monkey have been successful in localising different patterns of arousal, correlated with different types of emotion. According to Ploog (1986), these patterns are innate and can be determined in basically the same way in diverse species, from the highest primates all the way down to the reptiles. Therefore, it may be concluded that the lower animals do in fact possess something like 'emotions', although only humans are capable to some degree of voluntary control over their emotions. A striking example of the organising function of such integral 'emotions' in the lower animals can be seen, for instance, in reptiles; the shiny white marking on the head of the male Mexican iguana, signifying his dominant position among his fellows, instantly changes to a dirty brown colour when he loses this position to a rival. At the same time, his social behaviour also changes entirely.

Discussion

At the biological level, therefore, there are also a number of facts supporting the hypothesised mobilising, organising, and integrating functions of 'affects' or 'emotions'. Convergent findings from all three domains may thus be combined at least tentatively in the following new psychosocial/biological model of the psyche.

The 'psyche' can be understood as a complex hierarchical structure of operationally-integrated affective cognitive schemata or systems of reference, which are continuously generated by action itself as a 'condensation' of the whole experience. They function as comprehensive operational programmes for feeling, thinking, and behaving. Simultaneously, they provide the functional basis of all perception and communication. Their biological substratum is a corresponding network of privileged neuronal pathways, generated through repetitive action, which stores in its structure past events as a 'memory'. The limbic and hypothalamic systems play a key role in the regulation and integration of affects with cognitive sensorimotor functions. Both on the psychosocial and on the neuronal level, the affects or 'emotions' (their respective neurophysiological equivalents) function as central organisers and integrators, insofar as they:

(a) provide all incoming cognitive sensorimotor stimuli with a specific qualitative connotation and motivational direction
(b) participate in the state-dependent storage and contextural mobilisation of cognitive material
(c) connect functionally related cognitive elements synchronically and diachronically
(d) participate through this 'extraction of invariance' (common emotional connotations of different cognitive elements) in the generation of new affective cognitive systems of reference, on a higher level of abstraction
(e) through their hormonally mediated peripheral effects, simultaneously attune the whole organism to the demands of the current situation, on the basis of all past experience.

Important additional insights are provided into the central question of the relationships between the mental, social and biological domains by the concept of structural coupling of separate self-organising systems, elaborated by Varela (1979) and Maturana (1982). These authors see the neuronal system, 'external' social behaviour, and mental conceptualisation by a (human) observer as three different, self-contained functionally 'closed' phenomenological domains; each one tends to maintain its own structure and organisation. However, they influence one another in a domain of interaction (but only there), and thus give way to some degree of reciprocal modification and coupling. It is proposed here that Maturana's and Varela's self-contained domain of conceptualisation by an observer should be extended to the whole 'mental' or 'intrapsychic domain', thus arriving at the concept of (at least) three self-organising and functionally 'closed' phenomenal domains or systems. These are related to each other by reciprocal coupling – of the intrapsychic/mental domain, the interpersonal/social domain, and the neuronal domain.

A simple example of a structural coupling of two different physical systems can be found in the wave structures mutually produced in the area of interaction between wind and water. Analogous but much mor complicated instances of structural coupling must b assumed between the psychic, social, and biologica domains. An example is the biologically determine experiences of pleasure or displeasure which ma induce corresponding mental representations an motivations which, via specific social (e.g. sexual behaviour, may in turn lead to psychological, social and biological modifications, e.g. in the form o additional hormonal changes, or the establishmen of new pathways of neuronal associations. It i important to note that the concept of structura coupling implies that no phenomenological domai can ever be totally reduced to another, even thoug they may influence one another. Thus, the specifi 'psychic domain' is most certainly capable of bein modified by the biological, but it can never b completely 'explained' or even 'understood' by it – and vice versa. A hierarchy exists, however, insofa as there is a priority of the biological (and social domain in respect of evolution, but a supremacy o the psychological (and social) domain in respect o complexity (cf. Sabelli & Carlson-Sabelli, 1989). I therefore seems reasonable, on the one hand to investigate each domain separately, but on the othe hand, to give special attention to elements which connect them – the 'mediators'. One typical mediato is neural plasticity. But the notion of stress, with its relationship to the neurotransmitters and immune system, and on the theoretical level, all the general concepts from cybernetics and systems theory also represent different kinds of 'mediators' which are capable of bridging the psychosocial/biological hiatus (Ciompi, 1989).

In this context, it should be emphasised again that, as a consequence of the hypothesis of affective cognitive systems of reference as basic 'building elements' of the psyche on different hierarchical levels, findings from general systems theory can also be applied, in principle, to the psychosocial domain. This becomes particularly relevant in connection with the remarkable analogies that seem to exist between the effects of energy in physical or biological systems on the one hand, and of information in mental systems on the other (Ciompi, 1988*b*): just as material systems can be understood as organised energy, affective cognitive systems of reference can be understood as organised information. Disturbing new information will first be rejected, and, when this is no longer possible, finally be integrated, in three stages , α, β, μ, to an overall structural modification of the particular mental schema (Piaget, 1976). Emotional factors will obviously play an important role in these processes, for instance in the destabilising effects of positive feedback loops which amplify deviations. Therefore, the generation of new orms of mental organisation through the input of isturbing additional information represents a direct analogy to the sudden emergence of the 'dissipative tructures' (complex patterns of energy dissipation) which, according to chaos theory, can arise from continuous energy input in all kinds of physical or biological systems (cf. Prigogine & Stengers, 1981; Nicolis & Prigogine, 1987; Ciompi, 1988*b*, 1989).

An empirical refutation of the proposed model – which is a crucial question – can only be expected partially and step by step. Both cognitions and emotions can, however, be measured already with considerable accuracy in the psychosocial and, recently, in the biological domains. By combining current psychological and sociological methods with modern electroencephalographic, biochemical and brain imaging techniques, the following hypotheses should be accessible for refutation:

(a) affective processes are always accompanied by cognitive processes, and vice versa
(b) different affective states correspond to different functional states of the brain, characterised by different modes of information processing
(c) specific affects tend to be related to specific cognitive contents, and vice versa, forming functional affective/cognitive systems
(d) affects and their respective neurophysiological equivalents are involved in the storage of cognitive information
(e) affects and their respective neurophysiological equivalents are involved in the mobilisation of stored cognitive information
(f) in specific affective states, specific cognitive contents tend to be mobilised
(g) affects and their respective neurophysiological equivalents are capable of integrating extended neuronal systems into operational entities which regulate context-specific feelings, thoughts, and behaviour.

Eventually, an empirical verification of the postulated involvement of affects in the process of abstraction should also become possible, as well as a verification of the proposed analogies between information and energy, and of the assumed reciprocal structural coupling between the mental, social, and biological domains. Moreover, the possibility is not excluded that all the organising and integrating effects of emotions could be related, in the last analysis, to a single fundamental mechanism, such as the involvement of the neurophysiological equivalents of affects in neuroplasticity (i.e. by contributing to the generation and eventually, to the reactivation of affect-specific neuronal pathways).

A final question, which has been dealt with at greater length elsewhere (Ciompi, 1988*b*, 1991) concerns the possible practical, and in particular psychiatric, application of the proposed model, especially for a better understanding and treatment of the psychoses. According to the hypothesis, affective factors probably play an important role not only in the 'affective' psychoses, but also in schizophrenia. Both acute and chronic schizophrenic symptoms (e.g. disturbances of thinking and attention, affective cognitive ambivalence, emotional flattening, social withdrawal, reduction of interests, etc.) are better understood by considering the assumed close functional links between emotion and cognition. So far as the optimal therapeutic milieu for schizophrenics is concerned, emotional factors seem to be strongly under-valued. Last but not least, potentially important new findings could emerge from the proposed application of the model to the exploration of the evolutionary dynamics of the psychoses as suggested by modern chaos theory (Ciompi, 1989).

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Personality as a Vulnerability Factor to Depression

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One hundred and forty non-depressed primiparous women in a stable relationship completed two personality measures (the EPI and the IPSM) antenatally, and were then assessed for depression at several times post-natally. The risk of depression at six months was increased up to tenfold by high interpersonal sensitivity and threefold by high neuroticism. When previously depressed women were excluded from analyses, high interpersonal sensitivity and, to a lesser extent, high neuroticism were still associated with an increased risk of being depressed. Interpersonal sensitivity, as measured, is suggested as a refined personality risk factor to both the onset and recurrence of depression.

A proposition often put is that certain personality traits increase vulnerability to depression (Akiskal *et al*, 1983; Hirschfeld *et al*, 1983). Several personality traits have been proposed, including dependency (Hirschfeld *et al*, 1976; Birtchnell, 1984), orality (Chodoff, 1972), neuroticism (Coppen & Metcalfe, 1965; Hirschfeld *et al*, 1989), obsessionality (Abraham, 1911; Klein & Depue, 1985), and a dysfunctional cognitive style (Abramson *et al*, 1978). Confirmation of this hypothesis has, however, been obscured by methodological problems. Firstly, when a person is depressed, assessment of personality, especially by use of personality inventories, will generally result in a more deviant rating because of the effects of the mood state (Kendell & DiScipio, 1968; Hirschfeld & Klerman, 1979; Leibowitz *et al*, 1979). Consequently, assessment during a depressive episode may not be a valid measure of the pre-morbid personality. One way of overcoming this difficulty is to assess personality upon recovery, but even this may not provide a valid estimate of the pre-morbid situation as the experience of depression may change personality, while residual symptoms, disabilities or hardships may affect subsequent personality functioning (Hirschfeld *et al*, 1989).

A prospective study design has the potential to overcome this and other related methodological problems (particularly in resolving whether a factor precedes or is a consequence of depression). Nyström & Lindegard (1975) conducted a longitudinal study of 3119 males who had registered as private car owners during one year, with all the subjects completing the Marke Nyman Temperament Scale (MNTS; Coppen, 1966). Ten years later, a review of the registers of the psychiatric clinic and hospital in the city identified 114 subjects as having had treatment for a psychiatric illness, 37 of whom suffered from depression. The depressed subjects had earlier scored lower on the validity scale of the MNTS, suggesting a tendency to ruminate, to be shy and to lack endurance.

Angst & Clayton (1986) administered the Freiburg Personality Inventory to 6315 Swiss army conscripts in 1971. Twelve years later, psychiatric cases from this cohort were identified by examining hospital and out-patient records, and 19 unipolar and 16 bipolar depressives so identified. The unipolar depressives had scored higher on aggression, autonomic lability, nervousness and excitability, but low on dominance, while the bipolars returned essentially unremarkable scores. These two studies dealt only with the more severe depressions which required hospital or clinic treatment, so that subjects with neurotic depression may not have been identified.

Hirschfeld *et al* (1989), as part of the NIMH collaborative study of the psychobiology of depression, administered a battery of personality questionnaires to the 438 'never ill' relatives of the study probands. Of this group, 29 had a first episode of major depression over the six-year study period. These first-onset depressives scored higher on neuroticism, and lower on emotional stability and objectivity – measures reflecting lower emotional strength. They also scored higher on thoughtfulness, emotionality and dramatisation – measured by the 'hysterical pattern' scale (Lazare *et al*, 1966). A logistic regression established that an increased neuroticism score by one standard deviation or more increased the odds of being depressed by 50%. The authors also reported that for those aged 17–20 years, personality variables did not discriminate between the 'depressed' and 'never depressed' groups. In contrast, decreased emotional strength and increased thoughtfulness were associated with a first-onset depression in older subjects. A problem with such studies is that a large cohort is required in order to identify the few who become depressed, while the low base rate of the disorder may limit interpretation of the analyses. An alternative is to study a group who are at risk of developing depression within a given time.

An additional methodological difficulty has been hoice of personality measures. Generally, established ersonality measures have been used, but few have een developed specifically to assess depression-rone personality, with an exception being the nterpersonal Dependency Inventory (Hirschfeld *et al*, 977). Therefore, based on theoretical formulations nd clinical observations of depressives, we developed a personality scale to measure likely depression-prone ersonality characteristics (Boyce & Parker, 1989). A 73-item self-report questionnaire, scored on a four-oint Likert scale, was completed by 265 general ractice attenders. This scale was then reduced to 36 tems using factor analysis, and five factors were dentified. 'Interpersonal awareness' refers to the way in which an individual appraises and accords meaning to a situation (the subscale comprises seven items (score range 7–28), with an illustrative item being, "I worry about what others think of me"). 'Need for approval' assesses the extent to which an individual needs to be approved of by others (this subscale comprises eight items (score range 8–32), for example "I will go out of my way to please someone I am close to"). 'Separation anxiety' refers to undue anxiety about possible separation from a significant other (comprising eight items, for example "I feel anxious when I say goodbye to people"). 'Timidity' focuses on behavioural aspects of depression-prone characteristics, particularly the inability to behave assertively (comprising eight items, for example "I find it hard to get angry with people"). Finally, 'fragile inner-self' identifies difficulty with self-disclosure for fear of being rejected or ridiculed (comprising five items, for example "If others knew the real me, they would not like me"). These five factors can be broadly grouped under the umbrella term of 'interpersonal sensitivity'. This instrument, the Interpersonal Sensitivity Measure (IPSM) has demonstrated satisfactory internal consistency (Cronbach's $\alpha = 0.85$), was stable over time in a non-clinical group (test–retest coefficient = 0.70), but did show some sensitivity to depressed mood in a sample of depressives assessed when depressed and upon recovery (Boyce & Parker, 1989).

To test whether the IPSM measures an at-risk personality style to depression, a prospective study design is required. Even if it measures an at-risk style, it may be a trivial risk factor, thus we make comparison against an accepted personality risk factor (i.e. the EPI neuroticism scale) to examine the comparative predictiveness of each measure.

An appropriate group for such a study comprises women who are about to experience childbirth, where childbirth represents a relatively standardised stressor. Post-natal depression is said to be a common disorder with a clinical picture similar to 'neurotic/reactive' depressive disorders (Watson *et al*, 1984; Cooper *et al*, 1988) and is more likely to be the consequence of psychosocial factors rather than hormonal changes (Kendell, 1985). It has its onset within a few weeks of delivery but may arise any time between three and nine months post-partum (Nott, 1987), and run a chronic course of up to a year (Kendell, 1985; Nott, 1987). Estimates of prevalence range from 8.8% (Cooper *et al*, 1988), to 13–14% (Kumar & Robson, 1984; Nott, 1987), to as high as 20% (Paykel *et al*, 1980) of mothers in the year following childbirth.

Defining a case, or 'caseness', is a difficult issue to resolve generally (Wing *et al*, 1978), particularly in community samples and in post-partum groups when being a mother may result in endorsing sleep, appetite, weight and fatigue symptoms on depression case-finding measures. We elected to use two self-report measures, the Edinburgh Postnatal Depression Scale (EPDS; Cox *et al*, 1987), a specially designed, ten-item, self-report measure of post-natal depressive symptoms, and the Beck Depression Inventory (BDI; Beck *et al*, 1961). Harris *et al* (1989) investigated the concurrent validity of these two measures against a psychiatrist assessment using DSM–III criteria for major depression (American Psychiatric Association, 1980) in post-natal women. Those authors established that the EPDS (with a cut-off score of 13 and above) identified 21 of 22 women with major depression (sensitivity 95%), and identified six false positives (a specificity of 93%), while the BDI (with a cut-off of 11 and above) performed less well, with a sensitivity of 68% and specificity of 88%.

We, therefore, sought to determine whether personality traits, particularly high interpersonal sensitivity and neuroticism, would predict depression post-natally as a means of testing the vulnerability hypothesis. In essence, this hypothesis proposes that certain personality features predispose an individual to becoming depressed following a stressor, in this instance the stress of childbirth and adapting to motherhood.

Method

Provisional subjects for the study were primiparous women who were in a stable adult relationship. The women were recruited at a public obstetric hospital in Sydney during the second trimester of pregnancy by two research assistants. The research assistants did not attend all the antenatal clinics. While the majority of women approached were willing to participate, no formal record was kept of the number who declined. Women accepting were assessed at four time points, at baseline (during the second trimester), and at one, three and six months post-natally.

At the baseline assessment, a semistructured interview was conducted by one of the psychologist research assistants, in which demographic details and the nature and quality of their interpersonal relationships were assessed. A past history of depression was also sought. Specifically, they were asked: "In your life have you ever had a period of two or more weeks in which you felt sad, blue, depressed or when you lost all interest in things you care about and enjoy?". The women were asked to complete the BDI and two self-report personality inventories, the Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1964) and the IPSM (Boyce & Parker, 1989). They also completed the Intimate Bond Measure (IBM; Wilhelm & Parker, 1988) which assessed their perceptions of their intimate relationship on dimensions of 'care' and 'control'.

One month post-natally the women were reinterviewed by a research assistant, using a semistructured interview to obtain information about the delivery, how they were coping with their new role, and about depressive symptoms since childbirth. They were asked to complete the two depression measures, the BDI and EPDS. These two measures were again completed three months post-natally in a postal follow-up.

Six months post-natally the women were reinterviewed by a research assistant using a semistructured interview to find out how the women had been coping with and adapting to their new role, whether there had been changes in their intimate relationship, and whether any depressive symptoms had been experienced. The women were asked to complete the BDI and the EPDS again at that interview.

We used a cut-off of 11 or more on the BDI to categorise subjects as being a depressed 'case' and a cut-off score of 13 or more on the EPDS, in line with the study of Harris *et al* (1989).

Analysis of data

We first examined for differences between 'cases' and 'non-cases' at three months post-partum. The principal focus in this report is, however, the six-month post-partum review, when the peak incidence (between three and nine months) of depression is said to occur (Nott, 1987). Analyses were not carried out on the one-month data, when ephemeral depressive disorders ('the blues') are common. Women who were depressed at the baseline assessment (judged as scoring 11 or above on the BDI) were excluded from the analyses so that vulnerability to onset of depression could be assessed.

We examined for differences on the two personality measures between women who were BDI or EPDS 'cases' or 'non-cases' (using an analysis of covariance, with the baseline BDI score the covariate, so controlling for any influence of symptoms on the personality measures at baseline). We then examined the relative risk (Morris & Gardner, 1988) for women rating highly on each of the personality measures (judged as scoring at least one standard deviation above the mean on the measure), and their probability of becoming a 'case'. Subjects who scored one deviation or more below the mean on the extraversion scale were considered to be high on introversion.

A hierarchical multiple regression analysis was used t determine the contribution of baseline symptoms, relationship variables (measured using the IBM) and the personalit variables (EPI neuroticism and extraversion and the IPSM to depression at three and six months post-partum. The contribution of background (age and previous history o depression) and personality factors to 'caseness' wa examined using logistic regression (Fleiss *et al*, 1986).

We then repeated the analyses, excluding women who had reported previously being depressed, to assess risk to onset rather than risk to recurrence.

Results

Of the 258 women who initially agreed to participate in the study, 60 (23%) failed to complete the initial set o questionnaires. Of the women who completed that set, 34 (13%) were lost to follow-up: two miscarried, one had a baby who died a cot death, three moved overseas, six withdrew for personal reasons, and the remainder moved out o Sydney and could not be contacted. Thus 164 women participated in the study and returned completed questionnaires at six months. Twenty-four of this group (15% returned a BDI score of 11 or more at the baseline assessment and were excluded from the analyses, leaving a final sample of 140. Fifteen of these did not complete the three-month postal questionnaires. The mean age o the final sample was 27.2 years (s.d. 4.8, range 17–42 years). Forty women (28.6%) had experienced a previous episode of depression.

Eleven (8.9%) of the 125 women who completed the three-month postal questionnaires were cases using the EPDS and 17 (13.6%) were cases according to the BDI. At the six-month assessment, nine (6.4%) women were cases according to the EPDS, five of whom had not been at three months, and 16 (11.4%) according to the BDI, seven of whom had not been cases at three months.

The total IPSM score was modestly associated with the women's ratings of their current relationship, with correlations of −0.16 (NS) with IBM care and +0.27 ($P=0.002$) with control subscale scores. The IPSM score was also minimally related to severity of depressive symptoms as shown by its modest, albeit significant, correlation with the baseline BDI score ($R=0.31$, $P<0.001$).

We first examined for personality differences between BDI-defined cases of depression and non-cases at three months using an analysis of covariance with the baseline BDI score as the covariate. The only significant difference to emerge was for the EPI extraversion scale, with the cases scoring significantly lower than the non-cases (Table 1).

We then tested for differences between 'cases' and 'non-cases' at six-months post-natally. Cases, according to either case-finding measure, scored significantly higher on the IPSM. Importantly, these differences remained when the influence of baseline symptoms was controlled. High neuroticism scores were returned by the BDI cases, however, this did not reach significance (Table 1).

The subjects were then divided into two groups, those scoring high on a personality scale – one or more standard deviations above the mean – (high trait) and the remainder (normal trait). The relative risk of the high-trait subjects

Table 1

Unadjusted mean scores (s.d.) of cases and non-cases at three and six months on personality measures

ersonality measure	BDI 11 and above			EPDS 13 and above		
	cases	non-cases	F^1	*cases*	*non-cases*	F^1
hree months post-partum						
o. of subjects[2]	17	108		11	113	
PI						
neuroticism	8.48 (3.6)	9.35 (4.4)	1.12	8.19 (4 0)	9.31 (4.3)	1 75
extraversion	10.35 (4 5)	13.03 (3.9)	6.15*	12.75 (3.2)	12 63 (4.2)	0 01
PSM						
total score	90 71 (10.2)	87.80 (10.0)	0.78	88.33 (11.1)	88.14 (10.0)	0.10
ix months post-partum						
o. of subjects	16	124		9	131	
PI						
neuroticism	11.41 (4.8)	9.10 (4.2)	1.89	10.68 (6.2)	9.26 (4.2)	0.17
extraversion	12.91 (3.3)	12.25 (4.5)	0.25	10.25 (6 0)	12.43 (4.3)	0.62
PSM						
total score	95.64 (10.0)	87.84 (9 6)	6.34*	97.73 (10 9)	88.11 (9.6)	8 23**
ix months post-partum, excluding women who had previously been depressed						
o. of subjects	12	88		6	94	
PI						
neuroticism	10.89 (4.6)	8.74 (4 0)	1.53	8.76 (5.7)	9.00 (4.1)	0.03
extraversion	12.01 (3.1)	12.54 (4.3)	0.11	10.74 (3.4)	12.58 (4 2)	0.91
PSM						
total score	95.53 (10.8)	87.10 (9.7)	6.04*	96.59 (11.9)	87.57 (9.8)	4.95*

*P<0 05, **P<0 01.

1. F ratio for analysis of covariance controlling for baseline BDI score: d.f = 1,124 for three month analyses; d.f. = 1,139 for six month analyses; d.f. = 1,199 for analyses when previously depressed women had been excluded.

2. EPDS data missing for one subject

ecoming a case at three and six months was then calculated (Table 2). There was no increased risk for the women with igh trait scores to be a case at three months. Women with igh interpersonal sensitivity had a significantly greater risk of being a case at six months with a relative risk of 10.7 for EPDS 'caseness' and 3.2 for BDI 'caseness'. Women with high levels of neuroticism had an increased risk of being a BDI case (relative risk = 2.8) but not for being an

Table 2

Number (%) of BDI and EPDS cases at three and six months for those who score high on a trait and the remaining subjects

	BDI-defined cases				EPDS-defined cases			
	high trait	normal trait	relative risk	95% CI	high trait	normal trait	relative risk	95% CI
Three months post-partum								
EPI								
neuroticism	1/20 (5.0)	15/100 (15.0)	0.33	0.0–2.4	1/20 (5 0)	10/99 (10 1)	0.50	0.1–3.6
introversion	4/15 (26.7)	12/105 (11.4)	2.33	0.8–6.3	0/15 (0.0)	11/104 (10 6)		
IPSM								
total score	3/18 (16 7)	14/107 (13.1)	1.27	0.4–4.0	1/18 (5.6)	10/106 (9.4)	0.59	0 1–4.3
Six months post-partum								
EPI								
neuroticism	5/22 (22.7)	9/113 (8.0)	2.85	1.1–7.7	2/22 (9.1)	5/108 (4.4)	2.05	0.4–9.9
introversion	1/20 (5.0)	13/115 (11 3)	0.44	0.1–3.2	2/20 (10.0)	5/115 (4.3)	2.30	0.5–11.0
IPSM								
total score	6/22 (27.3)	10/118 (8.5)	3.22	1.3–7.9	6/22 (27.3)	3/118 (2.5)	10.72	2.9–39.7
Six months post-partum, excluding women who had previously been depressed								
EPI								
neuroticism	4/14 (28.6)	7/82 (8.5)	3.34	1.1–9.5	1/14 (7.1)	4/82 (4.9)	1.46	0.2–12.1
introversion	1/12 (8.3)	10/84 (11.9)	0.70	0.1–5.0	1/12 (8.3)	4/84 (4.8)	1.75	0.2–14.4
IPSM								
total score	5/15 (33 3)	7/78 (8.2)	4.05	1.5–11 1	4/15 (26.7)	2/85 (2.4)	11.33	2 3–56.5

Table 3
Hierarchical multiple regression analyses of baseline depression score, personality measures and relationship variable at three and six months

Variables entered at each step	Beta weight[1]	Multiple R	R^2	F	R^2 change	F change
Dependent variable three-month BDI score						
Step 1						
baseline Beck score	0.16	0.22	0.05	5.51*	0.05	5.51*
Step 2						
IBM care	−0.16					
IBM control	0.02	0.28	0.08	3.17*	0.03	1.94
Step 3						
EPI neuroticism	−0.04					
EPI extraversion	−0.13	0.32	0.10	1.19	0.02	1.19
Step 4						
IPSM	0.08	0.32	0.10	2.06	0.00	0.49
Dependent variable three-month EPDS score						
Step 1						
baseline Beck score	0.25*	0.31	0.10	11.81***	0.10	11.81***
Step 2						
IBM care	−0.22*					
IBM control	0.05	0.40	0.16	6.79***	0.06	3.96*
Step 3						
EPI neuroticism	−0.00					
EPI extraversion	−0.06	0.41	0.16	4.14**	0.00	0.29
Step 4						
IPSM	0.04	0.41	0.16	3.45	0.00	0.16
Dependent variable six-month BDI score						
Step 1						
baseline Beck score	0.14	0.21	0.04	5.69*	0.04	5.69*
Step 2						
IBM care	−0.09					
IBM control	0.00	0.25	0.06	1.32	0.02	1.31
Step 3						
EPI neuroticism	0.04					
EPI extraversion	−0.17	0.32	0.10	2.79*	0.04	2.68
Step 4						
IPSM	0.11	0.34	0.11	2.50*	0.01	1.03
Dependent variable six-month EPDS score						
Step 1						
baseline Beck score	0.21	0.28	0.08	10.81**	0.08	10.81**
Step 2						
IBM care	−0.15					
IBM control	−0.06	0.34	0.12	5.34**	0.04	2.48
Step 3						
EPI neuroticism	0.10					
EPI extraversion	−0.11	0.43	0.19	5.58***	0.07	5.35**
Step 4						
IPSM	0.29**	0.49	0.24	6.24***	0.05	7.92**

*$P<0.05$, **$P<0.01$, ***$P<0.001$

1. Beta weight for each variable in the final equation rather than the beta weight for the variable on the step entered.

EPDS case (relative risk = 2.0). Introverted women did not have a significantly increased risk of being a case on either case-finding measure.

Multiple regression analyses

We carried out hierarchical multiple regression analyses, with the EPDS and BDI scores, at three and six months, being the dependent variables, in order to explore th influence of additional variables. The baseline BDI scor was entered into the equation first to determine th subsequent contribution of the personality scales afte controlling for initial depressive symptoms. In the secon step, the IBM scales were entered into the equation to tes the contribution of relationship variables to depressiv symptoms. The EPI scales were entered at a third step an ie IPSM score entered at the final step to determine hether interpersonal sensitivity predicted depression when l other variables had been controlled. The results of these ialyses are shown in Table 3. The baseline BDI score ccounted for 5% of the variance ($R^2=0.048$) in the iree-month BDI score, and 10% ($R^2=0.098$) in the three-ionth EPDS scores. The IBM scales significantly increased ie variance in three-month EPDS scores by 6%, but ot the variance of the BDI scores. The IBM scale ontributing to this increase in the variance of the EPDS core was the care score (beta weight = −0.22) suggesting iat spouses scoring low for caring contributed to women xperiencing depressive symptoms at three months post-artum. The personality scales did not significantly ontribute to the regression equations, suggesting that these ersonality variables are not vulnerability factors at three ionths, supporting the findings of the univariate analyses, hereas relationship variables are important at this post-artum stage.

In similar analyses of the six-month data, the baseline DI score accounted for 4% of the variance in BDI scores nd 8% of the variance in EPDS scores. The addition of he IBM scale as a predictor did not significantly increase he variance accounted for in either equation. The EPI cales increased the amount of variance accounted for by % for the EPDS score, with a contribution from both cales (beta weights; neuroticism = +0.10, extraversion = −0.11), and by 4% for the BDI scores, although the *F* change) did not reach significance. When the IPSM was dded to the equation, the R^2 increased significantly for he EPDS equation but not the BDI equation. This set of nalyses suggests that baseline symptoms and personality re vulnerability factors to depressive symptoms (measured y the EPDS), with the IPSM significantly contributing to he variance in EPDS score after all other variables ad been entered into the equation. In this regression quation, the IPSM was the only variable which had a ignificant beta weight, suggesting that it was a major ontributor to EPDS symptoms at six months post-partum. The personality variables did not significantly increase R^2 for the equation with the BDI score as the dependent variable. However, the equation with all variables was significant, with the low extraversion, baseline BDI score and interpersonal sensitivity having the highest, but not significant, beta weights – suggesting that they all contributed to the equation.

Baseline symptoms were entered into these equations first to test the subsequent contribution of personality and relationship variables after such symptoms had been controlled. When the personality variables were entered into the equations first they accounted for the major portion of the variance. Thus, the IPSM acccounted for 16% and the EPI scales 11% (principally low extraversion) of the variance in EPDS scores. The personality variables accounted for smaller, but significant portions of the variance in BDI scores; the EPI scales accounted for 6% and the IPSM 5%. The addition of the baseline symptom score significantly increased the variance accounted for in EPDS score from 18% to 21% (*F*(change) = 4.01, $P<0.05$), but did not significantly increase the accounted for variance in BDI scores.

These findings suggest that the six-month depression score could not be fully accounted for by baseline depressive symptoms, and the personality scales, particularly interpersonal sensitivity, were significant predictors of six-month depression after controlling for initial depressive symptoms.

Logistic regression

We undertook logistic regressions (Fliess *et al*, 1986) to explore the contribution of the personality variables, as against background variables (previous history of depression and age), in becoming a case of depression at six months. Previous depression and age were entered into the equation first, with 'caseness' (defined using both measures in separate equations) as the dependent variable. The coefficient for previous episode (EPDS caseness) was −0.11 (estimated odds = 0.89) and for age −0.09 (estimated odds = 0.92). The results for this first step were similar when BDI caseness was used, with the coefficients for previous episode being −0.46 (estimated odds = 0.63) and for age −0.03 (estimated odds = 0.97). For the next step, three personality variables (IPSM and neuroticism and extraversion) coded categorically (high scorers on the trait v. the remainder) were entered. The only significant log odds ratio was for the total IPSM scale increasing the risk for EPDS caseness (coefficient = 2.86; estimated odds = 17.5; 95% confidence interval = 2.75–111.47). High interpersonal sensitivity did increase the risk for BDI caseness, but this did not reach significance (coefficient = 1.08; estimated odds = 2.93; 95% confidence interval = 0.77–11.12). The coefficients and estimated log odds for the remaining variables were: for the BDI caseness, previous episode (coefficient = −0.53, estimated odds = 0.58), age (coefficient = 0.00; estimated odds = 1.00), neuroticism (coefficient = 0.86; estimated odds = 2.37) and introversion (coefficient = −0.80; estimated odds = 0.45); and for EPDS caseness, previous episode (coefficient = 0.34; estimated odds = 0.71), age (coefficient = 0.09; estimated odds = 0.92), neuroticism (coefficient = −0.39; estimated odds = 0.69) and introversion (coefficient = 0.80; estimated odds = 2.24). This suggests that, if age and previous episode are held constant, women scoring high on interpersonal sensitivity are 17 times more likely to be a case of depression as judged by the EPDS and 2.9 times more likely to be a BDI case six months post-natally than the remainder of the sample.

New cases at six months

We then focused on the 100 women who had never experienced an episode of depression previously, to assess the capacity of the personality measures to predict 'new' cases. Twelve women were cases using the BDI and six when the EPDS was used. Significant differences were found using an analysis of covariance for the IPSM scores, with the cases, defined by either case-finding measure, scoring higher than the non-cases, as shown in Table 1. When the data were examined categorically, comparing those high on a trait with the remainder, significant differences emerged against the BDI-derived cases for the IPSM scale and EPI neuroticism (Table 2). When the EPDS was used to assess cases, those scoring high on the IPSM were 11.3

times more likely to become a case than those who scored normally or low. High neuroticism did not significantly increase the risk of developing depression for the EPDS cases.

Discussion

Women who were depressed at six months post-partum returned higher scores on the IPSM assessed antenatally. High interpersonal sensitivity (as assessed by the IPSM) was found to increase the risk of being a case of depression threefold (11-fold when the EPDS was the case-finding measure), while high neuroticism increased the risk threefold, suggesting that the IPSM is successful in defining an at-risk personality style, particularly for EPDS caseness, and both the IPSM and EPI neuroticism define at-risk personality characteristics for BDI caseness.

We then focused on the women who had never previously been depressed to assess the risk to a first-ever episode and also to exclude the effect of any possible personality changes brought about by a previous depressive episode. Cases, defined by either the BDI or the EPDS, scored higher on the IPSM; however, no significant differences emerged for the EPI scales. When the data were examined using relative risk – a more appropriate analysis for such an inquiry (Henderson, 1988) – high interpersonal sensitivity was found to increase the risk of becoming a 'new' case by 4–11 times. EPI neuroticism was found to increase the risk threefold, but only for BDI cases, so that the IPSM was overall a stronger predictor of 'caseness'.

In this study we used a number of strategies to control for baseline symptoms. Firstly, we excluded from the analyses women who were depressed at baseline. This strategy ensured that we were dealing with vulnerability to the onset of a new episode of depression. Secondly, we partialled out baseline symptoms in the comparisons between cases and non-cases in order to avoid any state effects on personality measures. Thirdly, in the multiple regression analyses, baseline symptoms were forced into the equation first to control for the possibility that baseline symptoms could contribute to symptoms at three and six months post-partum. These strategies were undertaken with the assumption that baseline symptoms could affect personality, such that the women would score themselves more deviantly, or that baseline symptoms were risk factors to becoming a case subsequently. These conservative strategies did not allow for the possibility that those with a more vulnerable personality would be more likely to experience symptoms at baseline. The causal relationship between symptoms and personality is complex and cannot be resolved with personality being assessed on only one occasion. Serial assessments o both personality and symptoms would be required to determine whether symptoms lead to a more dysfunctional personality or vice versa. In the multiple regression analyses with the EPDS as the dependent variable, we found that, while baseline symptoms accounted for a significant portion of the variance, interpersonal sensitivity accounted for an additional amount when it was entered into the equation last. This suggests that interpersona sensitivity in its own right is a risk factor to EPDS symptoms at six months. Baseline symptoms accounted for a major portion of the variance of the six-month BDI symptoms when they were entered in first, but not when entered after the personality measures, suggesting that neither personality nor symptoms are independent predictors of BDI symptoms.

Differences on the personality scales between cases and non-cases at three months were not apparent other than for the BDI cases being more introverted. Kumar & Robson (1984) examined the prevalence of 'neurotic' disturbance at three and six months post-partum. While the prevalence rate was higher at the former assessment, a number of subjects were 'cases' on only one occasion. They suggested that the symptoms and signs of 'post-natal' depression were most likely to be manifest in the first three months, so that later 'cases' are less likely to reflect 'post-partum' disorders and, implicitly, to be more generally determined. Thus, while we have focused on a specific group in our study, it is likely that personality vulnerability was expressed more clearly in relation to the onset of neurotic depression than to 'post-natal' depression.

We found neuroticism to be a predictor of depression (determined using relative risk rather than *t*-tests), in agreement with Pitt (1968), who found high neuroticism among his group of post-natal depressives. Kumar & Robson (1984) found high neuroticism to be associated with antenatal depression, but not post-natal depression. Kendell *et al* (1981) found an association between subsequent post-natal depression and high ratings of depression and lability of mood on the fifth day post-partum. The high ratings on day five were found, on further investigation, to be "virtually confined to, women with a high neuroticism score of 11 or more" (Kendell *et al*, 1984, p. 625). While they found no significant relationship between neuroticism and post-natal depression, women developing post-natal depression had a non-significantly higher neuroticism score (a mean of 11.25, which is similar to the means we found for the BDI cases) than the women who were not depressed. The results of Kendell *et al* are similar to our results for the women who became new cases of depression, who had a mean neuroticism score of 10.84 (for BDI cases).

Reporting a previous episode of depression did not increase the risk of developing depression, as shown by the logistic regression in which this variable did not have an associated increased risk of becoming a case. This is in accord with the findings of such workers as Pitt (1968) and Kumar & Robson (1984), but is contrary to the findings of other researchers (Paykel *et al*, 1980; O'Hara *et al*, 1983, 1984; Watson *et al*, 1984). Interpersonal sensitivity, on the other hand, did significantly increase the risk of becoming depressed when previous episode and age were held constant.

Some limitations of this study should be noted. Firstly, we focus on only one vulnerability factor to depression (personality), and have not dealt with other risk factors such as life events (Paykel *et al*, 1980; O'Hara *et al*, 1983), social support (O'Hara *et al*, 1983, 1984; Stein *et al*, 1989) or social adversity such as poverty (Stein *et al*, 1989), although the first risk factor was clearly controlled - at least as an event, but not necessarily in terms of impact. Another limitation is the choice of depression in the post-partum period for testing the vulnerability hypothesis, when our findings suggested the greater relevance of personality as a predictor of depression at six as against three months. We have interpreted this as reflecting two overlapping depressive conditions, a more formal 'post-natal' condition in which personality vulnerability is not so apparent, and one closer to 'neurotic depression' in general, perhaps emerging from extended adaptational stressors in women with a vulnerable personality.

We used self-report questionnaires to measure depression, and to identify cases, a strategy risking misclassification. Nevertheless, O'Hara *et al* (1983) found that 58% of women with a BDI score of greater than 12 and 17% of the women with a score below 10 met Research Diagnostic Criteria (RDC) for depression (Spitzer *et al*, 1978). We used a cut-off of 11 and above which Harris *et al* (1989) reported had the highest sensitivity and specificity; however, we acknowledge that this cut-off is not ideal and we may have included some false-positive cases in our group and may also have missed some cases of depression. Cox *et al* (1987) found that women with an RDC diagnosis of definite major depressive disorder were all identified by the EPDS using a cut-off score of 12 and above. Again, as noted earlier, Harris *et al* (1989) reported the EPDS as having high sensitivity and specificity compared with a psychiatrist rating of DSM-III major depression.

A final comment involves the use of young women for the study sample, particularly the extent to which the results can be generalised to depressives in general, across sexes and age groups. In their longitudinal study, Hirschfeld *et al* (1989) found that personality was not a risk factor for depression in the young adult group (aged 17-30) whereas it was among the older group. Our results do not confirm their finding. It is not clear whether interpersonal sensitivity might be a risk factor among males; clearly, this is an issue which requires clarification.

In summary, we established in a longitudinal cohort study that the personality traits of high interpersonal sensitivity, and to a lesser extent neuroticism, increase the risk of developing depression six months after childbirth. Importantly, this was found even when women who had previously experienced depression were excluded from analyses, so that only first-onset cases were examined. There have been few published studies supporting the proposition that personality is a vulnerability factor to depression. This study provides some support for such a hypothesis, as it demonstrates that personality is a vulnerability factor, to both new and recurrent episodes of depression, and, furthermore, assists in the definition of at-risk personality characteristics of relevance.

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Early Sexual Abuse and Clinical Depression in Adult Life

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Sexual abuse in childhood and adolescence was studied in 286 working-class mothers living in Islington, who were contacted on three occasions over a two-year period. The sample was collected primarily to study current vulnerability factors in the onset of depression, but childhood measures were also included to look at longer-term risk factors. Twenty-five women – 9% of the sample – reported sexual abuse involving physical contact before age 17 and, of these, 64% had case depression in a three-year period (which included the year before first interview). While such abuse was related to other earlier stressful experiences such as parental indifference, violence to the child and institutional stay, it was associated with an increased risk of depression over and above these factors. Sexual abuse before age 17 also related to having been divorced/separated or never having married/cohabited.

Since the 1970s there has been increasing interest in both the prevalence and the effects of sexual abuse in childhood, although the current concern is only a reawakening of a topic which has intermittently received public attention since the late 19th century (McIntosh, 1988). The matter has recently been given widespread media coverage in Britain. Particularly notable has been the introduction of the child help-line where abused children can speak to professional helpers in confidence, and also the Cleveland case, where the introduction of a new screening procedure to determine instances of abuse led to controversy at a national level over both the accuracy of identifying sexual abuse, the rights of parents in refuting allegations of abuse, and the intervention by social services (HMSO, 1988). What has emerged is the need for more research in this area so that children at risk can be more readily identified, social workers and doctors can be more certain in their diagnoses and the harmful effects of childhood sexual abuse more clearly documented. Definitions of childhood sexual abuse commonly cited are:

> "The exploitation of a child for the sexual gratification of an adult." (Fraser, 1981)
>
> "The involvement of dependent, developmentally immature children and adolescents in sexual activities they do not truly comprehend to which they are unable to give informed consent, or that violate the social taboos of family roles." (Kempe & Kempe, 1978)

Differences in criteria for including experiences as examples of sexual abuse involve the following issues:

(a) *Contact v. non-contact*: most studies of childhood sexual abuse have included all instances of contact and non-contact experiences (Finkelhor, 1986). Non-contact experiences include encounters with exhibitionists, solicitation to engage in sexual activity, being forced to witness sexual activity or receiving obscene phone calls.

(b) *Age of victim and perpetrator*: definitions commonly include any sexual activity between an adult and a child; the age differential between perpetrator and victim being wide enough to exclude sexual activity between 'peers'.

(c) *Use of force or coercion*: because of the inappropriateness of sexual activity between adults and children, and the inability of young children to give informed consent, proof of violence, threats or coercion are not usually necessary for incidents to be included. For this reason the term sexual 'assault' is often avoided. The question of the 'independence' of the incident, that is whether the child herself could have provoked it, are similarly considered irrelevant for these reasons.

(d) *Relationship to perpetrator*: most operational definitions of childhood sexual abuse include both relatives and non-relatives as perpetrators, although some use a more stringent criterion for the inclusion of sexual experiences of teenage children with non-related adults. For example, Russell (1984) included all types of sexual contact up to age 13, but for those over this age included only extra-familial contact where there was completed or attempted forcible rape.

Given such potential differences it is not surprising that a wide range of rates of abuse have been reported. For studies using community samples (as opposed to specially selected populations such as students or psychiatric patients) and using a criterion of at least one experience of sexual abuse in childhood, a range of between 6% and 62% has been reported (Finkelhor, 1986). However, differences cannot be totally attributed to differences in definition. Finkelhor (1986) has shown that they also relate to the method of data collection. For instance, surveys using face-to-face interviews appear to yield higher rates – of four studies using such an approach two have reported a prevalence rate of over 50% and a further two of 22% or more, whereas studies using self-administered questionnaires have reported rates of under 22% and telephone surveys have yielded rates of under 13%. Finkelhor also found that the more questions asked, and the more specific the questions about the abuse, the higher the rates obtained. Therefore, there may well be a problem of under-reporting in some studies. Ways of avoiding this include use of face-to-face interviews with detailed questioning and the use of a mixture of general trawling or screening questions followed by specific ones to elicit full information.

Various factors associated with sexual abuse in childhood have been identified: girls are at higher risk than boys (Badgley *et al*, 1984), those abused are less likely to have been brought up by their real parents (Landis, 1956; De Francis, 1969), and are less likely to have had higher education (West, 1985). Some studies have shown parental conflict to relate to abuse (Finkelhor, 1979; Newman, 1983), but results have not been entirely consistent (West, 1985). However, no studies have yet directly explored the relationship of sexual abuse to other stressful experiences in childhood such as neglect by parent figures. Studies of sexual abuse have not generally considered whether sexual abuse occurs in isolation or is generally part of a neglectful context – if the latter occurs then it is necessary to see whether sexual abuse or the neglectful context is the more important for later negative outcomes.

There is general agreement that there are no social class or ethnic differences, at least in studies in the US and UK (Finkelhor, 1978; West, 1985). The lack of a relationship between lower social class status and childhood sexual abuse could, of course, be confounded by a higher reporting rate among middle-class subjects. However, among the studies failing to find any association is Russell's (1984) which had the advantages of a high threshold for inclusion of incidents of abuse, a large sample size and detailed questioning, suggesting that the result may not be due to bias in reporting.

The long-term effects of early sexual abuse have received relatively little attention. An association with adult depression has been indicated, but this has been largely based on the study of non-clinical samples (Sedney & Brooks, 1984; Bagley & Ramsey, 1985; Mullen *et al*, 1988). Clinical studies have been less consistent: Peters (1984) found an association between childhood sexual abuse and depressed in-patient status, but other studies have reported no association (Meiselman, 1978; Herman, 1981). Other long-term consequences indicated are low self-esteem as an adult (Courtois, 1979; Herman, 1981; Bagley & Ramsey, 1985), poor quality of relationships, and a greater incidence of divorce (Mullen *et al*, 1988; Finkelhor *et al*, 1990). In addition, for women a fear of men has been identified as a possible consequence (Meiselman, 1978), and because of this a greater likelihood of remaining single (Courtois, 1979). Sexual abuse in childhood has also been linked to experience of violent relationships in adulthood (Russell, 1986) as well as victimisation in the form of later rape (Miller *et al*, 1978; Fromuth, 1983; Russell, 1986). Effects on sexual functioning have only been studied in clinical samples and these have consistently found adverse effects among women sexually abused in childhood (Meiselman, 1978; Herman, 1981).

In the current study, sexual abuse in childhood and adolescence was expected to be associated with case depression in the study period and this link to be mediated by a history of problems in marriage. A relationship between sexual abuse and other negative childhood experiences found to be important in depression such as inadequate parental care was expected and the need to explore the role of each in the development of depression anticipated.

The Islington study involved in-depth interviewing of a population sample of London women, the main focus of which was to determine the role of current vulnerability factors in onset of case depression. During the course of the study it was possible to question about childhood sexual abuse, and to examine its association with other negative childhood experience, the quality of relationships in adulthood, and with subsequent adult depression.

Method

The sample consisted of women aged between 18 and 50 years, of European or Afro-Caribbean background, living in Islington and registered with one of five general practice surgeries. The women all had at least one child under age 16 living at home, and either had husbands in manual occcupations or were single mothers (i.e. not married or cohabiting at time of interview). Women with these characteristics were selected by means of screening questionnaire and among suitable women (i.e. taking into account those who had moved away, etc.); the response rate was estimated to be 70%. Of those contacted 92% agreed o be interviewed (Brown *et al*, 1985) and the sample consisted of 395 women. The women were then followed up twice at one-year intervals. At the first follow-up 353 women agreed to be seen, and at second follow-up 286 women completed an interview. Since the questions about childhood sexual abuse were only administered at the third interview (second follow-up), this was used for the current analysis. The 109 women not seen at second follow-up did not differ from the 286 seen, in terms of demographic variables such as age, class or ethnic background, and were no different in terms of their rates of case depression at point of first contact.

Measures

The information was collected by means of lengthy semi-structured interviews which were tape-recorded and subsequently transcribed and rated according to pre-established rules and rating procedures. Inter-rater reliability on the scales has been reported elsewhere and was generally high (Brown *et al*, 1986*b*; Bifulco *et al*, 1987).

Sexual abuse

Early sexual abuse was defined as any sexual contact before the age of 17 – excluding willing contact in teenage years with non-related peers. Instances of abuse involved sexual intercourse, oral sex, and touching of breasts and genitals. There were no instances of being forced to witness sexual activity. Encounters with exhibitionists were not included, nor were any verbal sexual encounters with strangers or obscene phone calls. Details were collected about severity and frequency of the abuse and relationship to the perpetrator.

In addition to sexual abuse in childhood and adolescence, respondents were asked about sexual abuse in adulthood involving sexual contact against volition and accompanied by threats, coercion or force. Questions about sexual abuse were asked at two points in the interview. First, during questioning about recent life events respondents were asked: "Have you at any time in your life been sexually assaulted?". Second, in the childhood section of the interview respondents were asked: "Were you ever interfered with sexually?". Where there was any hint of a positive response, additional questions covered the nature of the abuse, and relationship to perpetrator. The present analysis only concerns sexual abuse before the age of 17. Twenty-two women (8%) initially reported sexual abuse before the age of 17. However, a further study of a subsample of 104 of these 286 Islington women has since been conducted and the women questioned further about sexual abuse. This added only three further instances (Andrews, personal communication) and these will be included in the present enquiry. (None had been depressed in the study period and their inclusion, if anything, works *against* the hypothesis being investigated.) The final figure for sexual abuse before the age of 17 is therefore 9% (25 women).

The women who reported childhood sexual abuse did not differ from those who did not in terms of age, cultural background, social class or whether born in Britain. However, it should be borne in mind that the sample was only of mothers who were largely working class and included only those from European or Afro-Caribbean backgrounds.

Lack of care

'Lack of care' is an index made up of two measures of inadequate care in childhood: parental indifference and lax control (Harris *et al*, 1986; Bifulco *et al*, 1987). 'Parental indifference' was assessed in terms of answers to detailed questions about physical or emotional neglect. Its presence was defined in terms of parental lack of interest and involvement in material care, school work and friends and so forth. 'Parental control' was approached in the same way and reflected the amount of supervision provided by parents and the amount of discipline imposed. Thus, playing in the streets unattended for lengths of time when under age 10, and going out until late at night with boys in teenage years were considered indicators of low control. Lack of care itself was defined as either a high rating of parental indifference (marked or moderate on a four-point scale) or low control (point three on a three-point scale) for a minimum of one year before age 17. Ratings were made for natural parents, and in the event of parental loss, for parent substitutes. Sexual abuse was not taken into account when assessing lack of care.

Parental violence towards the respondent

An assessment was made of any violence shown towards the respondent by parents before the age of 17 (Andrews & Brown, 1988). This took the form of actual beatings or of threats with knives, belts, etc. consistent with Straus's definition (Straus *et al*, 1980). Violence used by parents in controlling and punishing the child was the main focus of the scale; there were no instances where the violence only occurred at the time of the sexual abuse.

Institutional stay

Any period of time spent in an institution in childhood was recorded. This included local authority care, Dr Barnardo's homes, or borstals. Hospital stays and boarding schools were *not* included.

Adult measures

(a) *Present State Examination*. Depression was measured by means of the PSE (Wing *et al*, 1974; Cooper *et al*, 1977). This was used to collect symptoms of affective disorder in the 12 months before each interview and ratings of 'caseness' were based on the frequency and severity of key symptoms (Finlay-Jones *et al*, 1980). The threshold for caseness was designed to be comparable in severity to that found among psychiatric out-patients. This criterion for caseness has been compared with two other well-known systems, the Research Diagnostic Criteria (RDC; Spitzer *et al*, 1978) and the ID (level 5) of the PSE (Wing & Sturt, 1978), and the threshold found to be higher than either (Dean *et al*, 1983). Borderline cases of depression had depressed mood but fewer than four other 'core' symptoms (Finlay-Jones *et al*, 1980). In the present analysis prevalence of case depression at any time in the three years of the study period was used as the dependent variable.

(b) *Marital history*. Marital history was examined in terms of whether the women were ever divorced or separated or never married/cohabited.

Results

Sixty-four per cent (16/25) of those with childhood sexual abuse were depressed at caseness level at some point in the three-year study compared with 26% (67/261) of the rest of the women ($P<0.001$). There was no association with age at first abuse (80% (4/5) of those abused under age six, 56% (5/9) of those abused between seven and ten, 60% (3/5) of those abused between 11 and 14, and 67% (4/6) of those abused between 15 and 17 showed adult case depression). (Only two women had experienced abuse in childhood with different perpetrators and these figures represent age at first abuse; if age at later abuse is taken the result remains essentially unchanged.)

In order to see if the presence of depression might have influenced the reporting of childhood sexual abuse, women who were either cases or borderline cases of depression at point of third interview, when the sexual abuse material was collected, were excluded and the relationship between abuse and depression re-examined. The association remained, with 50% (6/12) experiencing case depression for those with early abuse v. 15% (32/212) of the rest ($P<0.01$).

More of the sexually abused women had chronic episodes of case depression lasting 12 months or more – 36% (9/25) v. 10% (26/261) ($P<0.001$). Disorders at case level other than depression were examined (mostly anxiety but also including a few instances of substance abuse) and were also more common among the abused women (32% (8/25) v. 10% (25/261) ($P<0.001$)). However, this difference was accounted for by women who also had case depression – see Table 1. Among women who were not cases of depression there was no association between sexual abuse and other disorders.

Over a fifth (6/25) of the instances of sexual abuse in childhood involved at least one incident of sexual intercourse. Half (10/20) of the remaining women were involved in other isolated incidents; the rest were subject to abuse over a period of time. The highest rates of depression were associated with the more severe abuse: 100% (6/6) for those experiencing sexual intercourse, 78% (7/9) for those with repeated abuse not involving intercourse and 30% (3/10) for those with single incidents of abuse not involving intercourse ($P<0.025$, 2 d.f.).

For slightly over a half of the women (14/25) the perpetrator was related by kinship (including step- or adoptive fathers) and three-quarters were known to the respondent: 28% (7/25) were natural fathers (4), adoptive fathers (1) or stepfathers (2), 28% (7/25) were other relatives (mainly uncles (5) but also 1 brother and 1 cousin), 20% (5/25) were acquaintances and 24% (6/25) strangers. Thirty-six per cent (9/25) were household members at the time of the abuse. There was a somewhat higher rate of adult depression where the perpetrator was a relation, adoptive or stepfather, but this was not significantly higher than when the abuse was by an acquaintance or a stranger – 71% (10/14), 60% (3/5) and 50% (3/6) respectively. When severity of abuse (i.e. either involving sexual intercourse or repeated abuse) and kinship to perpetrator were considered, severity of abuse was found to be the more important factor. Although for less severe abuse there was an increased rate of caseness for those with a kinship tie – 40% (2/5) v. 20% (1/5) without – with such small numbers it is impossible to judge whether there is any interactive effect.

Table 1
The relationship between non-depressive case condition, early sexual abuse and case depression in a three-year period

Early sexual abuse	Case depression		Total
	No	Yes	
	Percentage with non-depressive case (number)		
Yes	11.1 (1/9)	43.8 (7/16)	32.0 (8/25)
No	6.7 (13/194)	17.9 (12/67)	9.6 (25/261)
	NS	$P=0.06$	$P<0.005$

Other early experiences and sexual abuse

Before any causal interpretation can be entertained, it is necessary to know how far the association between early sexual abuse and depression is related to other negative experiences in childhood known to be related to depression in adulthood (Harris *et al*, 1986; Bifulco *et al*, 1987; Andrews & Brown, 1988). Lack of care from a parent, parental violence towards the child and institutional stay before age 17 were all related to depression. The association between the presence of these factors and childhood sexual abuse at any point before age 17 was generally high and statistically significant, with gammas of 0.76 for institutional stay ($P<0.001$), 0.57 for parental indifference ($P<0.001$) and 0.47 for parental violence to the child ($P<0.01$). The exception was parental control (part of the lack of care index) where the gamma was only 0.34 (NS). This is consistent with previous findings that parental lax control was less important than high indifference in its association with depression in the Islington sample (Bifulco *et al*, 1987), and fails to replicate the original finding among a sample with parental loss in Walthamstow showing that lax control makes an independent contribution to depression (Harris *et al*, 1986). This result is then somewhat less in conflict with results reported by Parker (1979, 1983) using the Parental Bonding instrument which emphasises high parental over-protection in addition to low care (affectionless control) as important for later depression. The lax control measure used here involves parental lack of supervision and failure to implement discipline, which are frequently consistent with parental indifference to the child and which may reflect an aspect of the same dimension. 'Over-protection' as measured by Parker may involve a somewhat different dimension reflecting intrusive parenting and over-dependence enforced on the children. This aspect of control was not distinguished in either the Walthamstow or Islington studies.

The time order of the different early experiences associated with sexual abuse was taken into account to see whether sexual abuse occurred in the context of these experiences or was itself a precursor of them. When only early experiences concurrent with or before the sexual abuse were considered, parental indifference, institutional stay,

Table 2
Other early negative experiences beginning before sexual abuse under age 17

Type of other early negative experience beginning before sexual abuse	Experience present	Experience absent	
	Percentage with subsequent sexual abuse		
Institutional stay	37 (7/19)	7 (18/267)	$P<0.001$
Parental indifference	26 (12/47)	5 (13/239)	$P<0.001$
Parental violence to the child	13 (6/45)	8 (19/241)	NS
Any one of the above	20 (14/71)	5 (11/215)	$P<0.001$

and parental violence towards the girl all related to sexual abuse, although the latter factor fell short of statistical significance (see Table 2). The presence of any of these three factors was used to form an index of other early negative experience and this was highly associated with sexual abuse before age 17 – 20% (14/71) compared with 5% (11/215) of remaining women ($P<0.001$, see Table 2). Over half the women with sexual abuse were positive on this index of 'other early negative experience', showing that such abuse occurred more often in families with earlier problems in parenting, neglect or physical abuse of children. (Only two women with sexual abuse had such negative early experience beginning after the abuse; one experienced an institutional stay, the other had both parental indifference and violence. These women were not included as positive on the indices.)

Sixty-six per cent (47/71) of those positive on this three-factor index experienced parental indifference, and this was the largest component. A further 31% (22/71) experienced parental violence without indifference and only 3% (2/71) had an institutional stay without indifference or violence. In effect, the index is therefore not much different from the lack of care index used in previous research – but parental violence to the child, and institutional stay proved to be more potent predictors of sexual abuse than lax parental control. The 'institutional stay' variable was of particular interest, because, although it only added an extra two women to the index who did not experience parental indifference or violence, it was particularly highly associated with sexual abuse – of the 19 who experienced institutional stay, ten had sexual abuse. In four of the latter, the sexual abuse occurred before the stay and in a further three during the stay itself, and all of these seven women were cases of depression in the study period. (A further three experienced sexual abuse after leaving the institution.)

The index of other early negative experience was highly related to depression in the three-year study period – 45% (32/71) v. 23% (50/215) were depressed ($P<0.001$). Logistic regression indicated that both this index and sexual abuse are required to model depression (see Tables 3 and 5). However, it should be noted that only a small number of women in the sample as a whole experienced sexual abuse without scoring on the index of other negative experiences (11 women, 6 of whom are cases). Of these, two women experienced such factors after the abuse and both were cases. If these are excluded, then only 5% (4/83) of cases of depression in the sample as a whole experienced sexual abuse without any of the other negative experiences at any point before age 17, compared with 14% (12/83) cases of those with sexual abuse and a score on the other index, and 24% (20/83) cases with a score on the negative experiences index alone. Thus in practice, sexual abuse without accompanying negative childhood experience appears to be responsible for a relatively small proportion of the total instances of depression, although it is related to risk of depression when occurring alone.

Table 3
Other early negative experience, sexual abuse under 17 and occurrence of depression in a three-year period

Other early negative experience[1]	Sexual abuse under 17 Yes	No	Total
	Percentage with depression (number)		
Present	71 (10/14)	39 (22/57)	45 (32/71)
Absent	55 (6/11)	22 (45/204)	24 (51/215)
Total	64 (16/25)	26 (67/261)	29 (83/286)

[1] Either high parental indifference, parental violence to the respondent or institutional stay (all before age 17) beginning before sexual abuse or in the absence of sexual abuse.

Early sexual abuse and marital history

Marital history was examined in relation to early sexual abuse. A raised rate of sexual abuse was found among those ever having been divorced or separated (14% or 11/78 had early sexual abuse) and those never having married or cohabited (23% or 3/13) compared with the rest (6% or 11/195) ($P<0.025$, 1 d.f.). The remaining women were mainly in their only marriage or cohabitation, but it also included four widows, two of whom had remarried. Logistic analysis showed that early sexual abuse, other early negative experiences and the marital factor

Table 4
Early sexual abuse, prior early negative experiences and whether divorced/separated or never married and percentage of subgroups cases of depression (actual numbers in parentheses) in the three-year period

Marital history	Early negative experiences Yes		No	
	Sexual abuse		Sexual abuse	
	Yes	No	Yes	No
Ever divorced/ separated	100 (5/5)	44 (8/18)	83 (5/6)	35 (17/49)
Never married	50 (1/2)	33 (1/3)	100 (1/1)	71 (5/7)
Rest[1]	57 (4/7)	36 (13/36)	0 (0/4)	16 (23/148)

[1] Mostly women in first marriage or cohabitation, but includes 4 widows, 2 of whom remarried.

Table 5
Logit analyses for data presented in Tables 3 and 4

Model fitted	Scaled deviance	d.f.	*P*	Reduction in deviance	d.f.	*P*
(a) *For data presented in Table 3*[1]						
Constant	21.319	3	0.001			
A. Early negative experience	10.088	2	0.01	11.231	1	0.001
B. Sexual abuse <17	6.773	2	0.05	14.546	1	0.001
A+B	0.004	1	NS	6.769	1	0.025
(b) *For data presented in Table 4*[2]						
Constant	51.655	11	0.001			
A. Sexual abuse	37.110	10	0.001	14.545	1	0.001
B. Divorced/ separated/ never married	29.647	9	0.001	7.463	1	0.01
C. Early negative experience	40.424	10	0.001	11.231	1	0.001
A+B	19.664	8	0.025	9.983	1	0.005
A×B	15.948	6	0.05	–	–	–
A+C	30.341	9	0.001	6.769	1	0.001
A×C	30.336	8	0.001	–	–	–
B+C	20.666	8	0.01	8.981	1	0.005
B×C	15.278	6	0.025	–	–	–
A+B+C	13.850	7	NS	5.814	1	0.025

1 The best fitting model is A+B (early negative experience and sexual abuse <17).

2. The best model is A+B+C (sexual abuse+ever divorced/separated or never married+early negative experience).

(separated/divorced or never married) are all required to model later depression (see Tables 4 and 5).

When severity of abuse was looked at in relation to marital history no significant result emerged – possibly because of the small numbers involved and the number of breakdowns required by the analysis. Of the 15 with severe abuse (either repeated or involving sexual intercourse) 67% had been divorced/separated or never married. This compared with 40% (4/10) of those with less severe sexual abuse (NS).

Discussion

Nine per cent of women reported sexual abuse before the age of 17. This is in the lower range of reported prevalence rates – although Finkelhor's review showed half of the studies to report a prevalence rate of between 6% and 15% (Finkelhor, 1986). The rate is considerably lower than the 42% found by Nash & West (1985) in Oxford. This is almost certainly due in part to the rather stringent criteria for inclusion in the present study. Finkelhor (1986) has shown that excluding encounters without physical contact considerably reduces estimates of abuse. For example Russell (1984) reports prevalence rates of 54% for any sexual abuse and 38% for abuse involving contact, and Badgley *et al* (1984) reported 39% and 22% respectively.

There are two other possible reasons for the comparatively low prevalence rate. The Islington sample involved women with children. Previous studies of sexual abuse have shown that one possible long-term outcome of abuse is an extreme avoidance of men (e.g. Meiselman, 1978). Such women may well be less likely to have children and would thereby be unrepresented in this sample. Another possible reason may be the fact that only two screening questions were used. Finkelhor (1986) found four or more screening questions to be associated with the highest prevalence rates.

However, the rate of early sexual abuse is broadly consistent with the MORI survey which reports a 12% prevalence rate of sexual abuse for girls before age 16 (Baker & Duncan, 1985) and a recent New Zealand study with a 13% rate before age 12 (Mullen *et al*, 1988) which suggests that under-reporting was probably not a major source of bias. In the study referred to earlier, interviewing 75 daughters of the Islington women in the present sample, aged 15–25, a rate of 16% of early sexual abuse was found (Andrews, personal communication).

As discussed earlier, sexual abuse is a difficult topic to study and to elicit fully, mainly because of the stigma and embarrassment attached to it, but also because of its retrospective nature in studies such as this. The problem with collecting sexual abuse data is now taken to concern under-reporting of instances of abuse and not over-reporting as originally interpreted by Freud in his apparent abandoning of the 'seduction hypothesis' (Masson, 1985). However, such under-reporting could have a biasing effect on results if non-cases were less likely to report their early abuse than those with depression. Since the result reported here still held when women with case or borderline case depression at the point when the sexual abuse information was collected were omitted, there is nothing to suggest that depressive symptoms at the time of interview were a major source of bias. However, as already argued, under-reporting was probably minimised by:

(a) taking the more severe forms of abuse (i.e. those involving physical contact)
(b) the use of in-depth face-to-face interviews
(c) questioning about abuse in the context of other information about childhood and adolescence.

Future studies might well use a larger number of screening questions to elicit information about sexual abuse and perhaps experiment with repeating the questions on more than one occasion or at different points in the interview. In the present climate where the subject of abuse is becoming less taboo there is a chance of even more open reporting.

It should be emphasised that the instances of early sexual abuse dealt with in the present analysis are few, and therefore conclusions must be tentative. However, an important result which should be explored in other studies is that over half of the instances of early sexual abuse occurred in a context of other negative experience (parental indifference, violence or institutional stay). Yet, despite the implications of poor parenting, the abuse was only perpetrated by the natural father in 16% (4/25) of instances, and in no instances by the mother. Thus the joint occurrence of parental indifference, violence and sexual abuse is far from synonymous with the natural parent as abuser; it is likely that just as often the lack of proper attention and concern from parents and surrogate parents makes the child more at risk of sexual abuse from men in general. In fact in just under half (11) of the instances of sexual abuse, the perpetrator was neither a kin-member nor a step- or adoptive father. However, the majority of girls (19) who experienced sexual abuse did so from men who were known to them. Although sexual abuse in childhood without parental indifference or violence or institutional stay was also associated with depression, it was fairly rare and was associated with only 5% of the cases of depression in the sample as a whole, compared with 14% when accompanied by such negative early experience and 24% for these latter factors alone. There is a need for further studies of sexual abuse with larger numbers which can discriminate better between the effects of the early sexual abuse alone and those which occur in the context of other stressors in childhood or adolescence.

The negative findings we obtained may be helpful in identifying possible misconceptions about early sexual abuse. First, as already mentioned, it is by no means most commonly perpetrated by the natural father, nor in the present sample is it a feature of very close over-involved families which appear sound on the surface. Rather, it seems most often to occur when families are in some way failing to function adequately – when parents (or parent substitutes) are neglectful or violent, or where the child is put into institutional care. In these circumstances the perpetrator of the abuse is almost as likely to be a non-kin as a kin member. However, the perpetrator was, in all but one instance, a male. (The remaining instance was of abuse by an older girl in an institutional setting.) Second, risk of depression was unrelated to age at sexual abuse under 17, although there was a hint of a somewhat increased rate among the few who were under six years old at the time of the abuse. Third, the prevalence of abuse found in this sample of relatively deprived inner-city mothers was 9%, which in terms of some rates reported (e.g. Finkelhor, 1986) is on the lower end of the range. In the Islington sample, sexual abuse in childhood occurred only slightly less often than parental indifference (16%), and parental violence to the child (16%), and was similar to the rate of institutional care before age 17 (7%).

Early sexual abuse also appeared to increase the risk of marital problems in the form of divorce or separation, or never having married or cohabited, despite having children. This is consistent with certain other research findings (Courtois, 1979; Mullen *et al*, 1988; Finkelhor *et al*, 1990). Marital history added to the other early experiences in contributing to depression. The reasons for this link have not been explored in the current analysis, mainly because of the small numbers involved, but one can speculate about possible mechanisms. A two-stranded model covering the person's life before onset of depression has been put forward to show that inadequate parental care in childhood relates to higher risk through both environmental and cognitive pathways (Brown *et al*, 1986*a*; Harris *et al*, 1990). An example of the environmental pathway relevant for marital history would be the link between neglect by parents, premarital pregnancy and marrying an undependable man and subsequent marital difficulties. Risk of depression would then be increased through the greater exposure to stressors created by the husband or in possible resulting single-parent status after separation. It has been argued that on the cognitive pathway, negative childhood experience relates to a helpless cognitive set which interferes with the development of successful supportive relationships, which in turn increases risk once a stressor arises. This model is quite likely also to apply to the experience of early sexual abuse. For example, previous research suggests an association between early sexual abuse and being involved with violent men (Russell, 1986). It is also likely to result in negative cognitive attitudes such as low self-esteem, distrust of men and other problems such as sexual malfunction (Meiselman, 1978; Herman, 1981) which may contribute to the disruption of a marital relationship. Further research is required to illuminate the possible underlying mechanisms involved in the relationship between early sexual abuse and depression and to replicate the current findings on a larger sample.

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Outcome of Bipolar Disorder on Long-Term Treatment with Lithium

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The long-term treatment outcome of 248 bipolar patients in an out-patient lithium programme was assessed. Over half of the patients (138 or 56%) had no affective episodes in the year observed. Patients were divided into outcome groups according to GAS scores: the outcome for 40% of patients was good, for 41% fair, and for 19% poor. More frequent psychiatric admissions before starting lithium treatment was the best predictor of poor outcome, followed by a negative affective style in the family and lower social class. Current alcohol and drug abuse was associated with poor outcome. Although familial and psychosocial factors were significantly associated with outcome, the findings suggest there may be inherent differences in the pathophysiology of bipolar disorder reflected in an increased frequency of episodes which account for a large variance in lithium treatment outcome.

Controlled studies and clinical experience since the introduction of lithium carbonate have confirmed the initial observations of its efficacy in the prevention of recurrences of bipolar affective episodes (Prien *et al*, 1984; Schou, 1988). The NIH/NIMH Consensus Development Panel (1985) recommended lithium as the drug of first choice for treating recurrent bipolar disorder. Benefits to patients and their families have been enormous, not only in reducing psychiatric morbidity but also in stabilising psychosocial functioning. However, even when reliable diagnostic criteria are used and recommended treatment guidelines are followed, a significant proportion of bipolar patients have a poor outcome. Factors associated with poor response to lithium include rapid cycling (Dunner & Fieve, 1974), and medication non-compliance (Kocsis & Stokes, 1979). A family history of mania is associated with a good lithium response (Mendlewicz *et al*, 1973). There is also evidence that the phenomenology of the affective psychopathology may be related to treatment outcome. Rosen *et al* (1983) reported that bipolar patients who had experienced delusions or hallucinations at some time in their illness had a significantly poorer social outcome. Keller *et al* (1988) found that patients who entered a study with mixed/cycling episodes were more likely to experience poor recovery. Post *et al* (1989) pointed out that severe mania, dysphoric mania, and rapid cycling have been associated with a poor response to lithium and may be indicators of a better response to carbamazepine. Silverstone & Romans-Clarkson (1989), in reviewing the causes and prevention of relapse in bipolar disorder, note that genetic heterogeneity and the influence of multiple factors – seasonal, neuroendocrine, and psychological – interact in varying degrees to influence outcome. These authors conclude that no single explanation will suffice. Carroll (1979), in reviewing predictors of lithium response, concluded that a clinical trial of lithium was the only way to determine who will respond. This advice remains true today.

Psychosocial and familial variables have been shown to influence the onset of episodes and the outcome in depression (Brown *et al*, 1987) and schizophrenia (Vaughn & Leff, 1976; Tennant, 1985). Psychosocial factors have also been studied in relation to outcome in bipolar disorder. Life events may have some influence in precipitating the first episode of the disorder but appear to be of diminishing importance as the course of illness progresses (Ambelas, 1987). Social support has been associated with good outcome in a lithium-treated population (O'Connell *et al*, 1985). Miklowitz *et al* (1988), reasoning that bipolar disorder which follows a relapse–remission course like schizophrenia might also be affected by psychosocial factors, measured expressed emotion (EE) and affective style (AS) in the families of bipolars. According to Koenigsberg & Handley (1986), "Expressed emotion is an operationally defined construct that is a measure of the extent to which relatives express critical, hostile, or overinvolved attitudes about a patient when discussing the patient's illness and family life with an interviewer". Affective style, a related construct, is a measure of the emotional-verbal behaviour of relatives in direct interaction with patients (Miklowitz *et al*, 1988). Negative AS connotes a critical, demeaning, or intrusive style of communication towards the patient. High EE and negative AS in bipolar families were found to predict relapse, especially when present together.

It is probable there are multiple determinants to the long-term treatment outcome of bipolar disorder.

It appears from emerging data from molecular genetic studies that bipolar disorders may form a heterogeneous group of phenotypically similar conditions (Egeland *et al*, 1987; Baron *et al*, 1987; Hodgkinson *et al*, 1987; Kelsoe *et al*, 1989). It is likely that some of the variance in treatment outcome is related to differences in pathophysiology of different subtypes. However, even assuming that homogeneous patient groups are given similar treatment, it might be expected that environmental factors would affect outcome.

Our group at St Vincent's Hospital and Medical Center of New York began to study lithium in manic-depressive disease in 1968 (Freyhan *et al*, 1970). We have used a biopsychosocial systems model as a framework for understanding aetiology and planning treatment (O'Connell & Mayo, 1981). An early study of treatment results of 60 patients with bipolar affective disorder according to Research Diagnostic Criteria, maintained on lithium, indicated that 20% had continued to suffer moderate or severe impairment (O'Connell *et al*, 1985), and we concluded that factors other than diagnosis or pharmacotherapy had to be considered to explain this variance. The principal investigators have been involved in the study since its inception and have closely followed the patients and their families, in some instances over three generations. A study has been published on the families and children of bipolar patients (Mayo *et al*, 1979). On the 20th anniversary of the study we decided to assess the long-term outcome of patients in our programme and to undertake an analysis of the relationship of demographic, historical, and psychosocial variables to treatment outcome.

Method

Patients were eligible for inclusion in the outcome study if they met the DSM-III diagnostic criteria for bipolar disorder (American Psychiatric Association, 1980) and had been undergoing continuous lithium treatment in our out-patient programme for one year or more. A total of 310 patients met the inclusion criteria. Reliable follow-up data were obtained on 248 patients. The number of times patients had been admitted before entering the programme was known, but not the duration and phenomenology of these episodes. Routine serum lithium levels indicated good compliance with medication. Many of the patients lost to follow-up had moved from the New York area or could not be located. Thus reliable data could not be obtained for 62 patients who were, therefore, not included in the results. An analysis of the available demographic data did not reveal any differences between these two groups, but it is impossible to state whether there were differences in treatment compliance or outcome.

Treatment was given in a university hospital out-patient setting. The treatment team included psychiatric residents in their third or fourth year of training, psychologists, social workers, nurses, and case managers, in a structured supervisory setting. Patients had been in the treatment programme for a mean of 8 (s.d. 5.6) years. They were maintained on lithium at serum levels of 0.5–1.0 mmol/l. Antipsychotic medications, antidepressants or carbamazepine were used in addition to lithium, if indicated. Individual and group psychotherapy were available. Treatment decisions were made on an individual basis along the guidelines of the NIH/NIMH Consensus Development Panel (1985). Within these guidelines no attempt was made to control treatment variables.

Historical and demographic data were obtained from medical records and by multiple interviews with patients, families, and friends. These included current age, age at onset of illness (defined as the first manic or depressive episode), and the number of admissions before entering the treatment programme. Social class was rated according to the Hollingshead–Redlich Index of Social Position (Hollingshead & Redlich, 1958).

Treatment outcome for the past year was rated using a modification of the Longitudinal Interval Follow-up Evaluation (LIFE) method (Keller *et al*, 1987). Our concept of outcome is multidimensional and includes assessment of affective psychopathology, social adjustment, general medical health, and mortality. The LIFE rates psychopathology, suicidal gestures and attempts, and alcohol and drug abuse. Psychopathology is rated weekly to provide a Psychiatric Status Rating (PSR) on a scale of 1–6: 1, usual self; 2, residual symptoms; 3, partial remission; 4, marked symptoms but not meeting Research Diagnostic Criteria (Spitzer *et al*, 1978); 5, symptoms meeting RDC; 6, severe symptoms meeting RDC. For this study ratings were limited to major depressive or manic episodes during the previous year. A patient was considered to have an affective episode if he or she met RDC for either mania or major depression for two consecutive weeks. Ratings of psychopathology were made by the investigators from the medical records and interviews with the treating physicians.

Patients have routine physical evaluations as part of the programme and non-psychiatric medical illnesses were recorded. The LIFE also assesses psychosocial functioning in the areas of employment, household duties, studies, interpersonal relations with families and friends, sexual functioning, recreation, and satisfaction. From this an assessment of global social adjustment (GSA) is made on a five-point scale with 1 as very good and 5 very poor. A Global Assessment Scale (GAS; Spitzer *et al*, 1978*b*) was completed as a consensus rating of the two senior investigators (RAO'C and JAM). Patients were divided into outcome groups based on the GAS as follows: 71 and above, good outcome; 50–70, fair; below 50, poor.

Data on other psychosocial parameters were obtained. Life events for the past year were scored using the method described by Paykel *et al* (1971). This scale includes 61 life events, derived with modification from the scale described by Holmes & Rahe (1967). At the top of the scale are catastrophic events, such as the death of a child or spouse; at the bottom are events such as a move or pregnancy.

/e applied the mean rating scores derived in the authors' udy, ranging from 19.33 for the death of a child to 2.94 r having a child marry with approval, to the life events ported by our patients over the past year, and totalled ese for the year's life-events score. To measure social pport, the Personal Resource Inventory (PRI) developed y Clayton *et al* (1977) for the NIMH Collaborative Study as used. This instrument was designed to measure the ocial support usually available to a person. From this ventory a global score of social support was constructed, ith 1 as good, 2 adequate, and 3 poor. To some extent hese scores rely on the judgement of the rater.

Family attitudes and interaction were measured as ollows. Expressed emotion (EE) of families was rated s either high or low according to the criteria described by aughn & Leff (1976). The amount and type of criticism f the patient, and the amount of hostility expressed erbally, emotionally, or behaviourally were noted. More han six hostile, critical, or emotionally overinvolved emarks was rated as high EE. Affective style (AS) was rated s either benign or negative, as described by Miklowitz *et l* (1988). A rating of benign AS was assigned if six or more upportive or critical benign statements, which were focused on behaviour rather than on the person, were made by the relative within ten minutes with the patient present. A rating of negative AS was given if six or more critical, demeaning, guilt-inducing, or intrusive statements were made within ten minutes. The PRI, EE, and AS ratings were made by the clinical sociologist (JAM) one year before the outcome ratings.

One-way ANOVA and the χ^2-test with Yates' correction were used to compare the various demographic, historical, and psychosocial parameters among the outcome groups. The Student–Newman–Keuls multiple comparison test was used to determine significant differences on the ANOVA between groups. Variables found in the univariate analyses to be significantly related to outcome were entered into a multiple stepwise regression, with the GAS as the dependent variable, to assess their contribution to the total variance in outcome. The SPSS/PC+ statistical software program was used for the data analysis.

Results

The mean age of the 248 patients was 52.7 years (s.d. 16.1, range 24–90), and the mean age at onset was 28.8 years (s.d. 12.3, range 7–73), with a mean number of previous admissions of 5.1 (s.d. 3.7, range 0–23). Demographic data are shown in Table 1; they reflect those of the catchment area. Over a half (138, 56%) of patients did not experience a major affective episode in the year assessed, though the remaining 44% did. Twenty patients (8%) had only depressive episodes, 36 (15%) had only manic episodes, and 54 (22%) had both manic and depressive episodes. The global social adjustment was rated as good or very good in 118 (48%) patients, fair in 72 (29%), and poor or very poor in 58 (23%). Over one-third of patients (86) also had significant medical illness. These included obesity, chronic obstructive pulmonary disease, hypertension and cardiovascular disease, benign prostatic hypertrophy, hypothyroidism, and nephrogenic diabetes insipidus (the latter two related to lithium). Cigarette smoking was particularly heavy. Problems with alcohol and drugs were common: 57 patients (23%) were rated as substance abusing.

Table 1
Patient characteristics ($n = 248$)

	No.	(%)
Sex		
male	117	(47)
female	131	(53)
Social class		
I	3	(1)
II	22	(9)
III	190	(77)
IV	33	(13)
Race		
white	238	(96)
black	9	(3.6)
oriental	1	(0.4)
Marital status		
single	106	(43)
married	65	(26)
separated, widowed, divorced	77	(31)

Twenty-three patients died during the whole period of the study (not just the last year), 20 of natural causes, four by suicide. No pattern was evident in the natural deaths. The mean age at death was 63 (s.d. 14) years.

The mean GAS for the whole population at the time of assessment was 67.2 (s.d. 15.1), corresponding to "some mild symptoms or some difficulty in several areas of functioning, but generally functioning pretty well" (Spitzer *et al*, 1978*b*). When divided into outcome groups, 99 (40%) were considered to have a good outcome, 101 (41%) fair, and 48 (19%) a poor outcome.

There was no significant difference in current age or age of onset by outcome group. More frequent admission to hospital before entering the lithium treatment programme was significantly associated with poorer outcome, however ($F = 20.3$, d.f. 2, 241, $P < 0.0001$) (Table 2). The incidence of substance abuse was also higher in the poor-outcome groups. Seven per cent of good-outcome patients had problems with substance abuse, compared with 36% of the poor-outcome groups.

Table 2 also displays the psychosocial factors analysed by outcome group. Data on these parameters were not complete on all patients. To complete EE and AS ratings the relative or significant other must agree to co-operate in the interview. Consequently, ratings are missing for some patients. However, a characteristic of bipolar families is their verbal expansiveness. Significant others needed little or no encouragement to describe their relationships and feelings towards the patients. Consequently, it was possible to rate EE and AS using the required criteria for those who agreed to participate.

There was no significant difference in outcome between the sexes. Currently married patients were under-represented in the poor-outcome group. Lower social class was associated with poorer outcome. There was a trend for the poorer-outcome groups to have experienced more life events

Table 2
Psychosocial factors and outcome according to the GAS

	Good ($n=99$)	Fair ($n=101$)	Poor ($n=48$)	Significance
Sex				
no. of men	45	48	24	NS
no. of women	54	53	24	
Mean (s.d.) no. of previous admissions	3.8 (2.6)	5.2 (3.7)	7.7 (4.4)	$F=20$ 3, d.f 2, 241, $F<0.000$
Marital status				
single	38	42	26	$\chi^2=11.4$, d.f. 4, $P=0.02$
married	34	27	4	
separated, widowed, divorced	27	32	18	
Mean (s.d.) score for social class	2.86 (0.45)	3.04 (0.55)	3.31 (0.47)	$F=13.7$, d.f. 2, 245, $P<0.000$
Mean (s.d.) score for life events	25.2 (16.6)	33.7 (28.4)	38.5 (18.4)	$F=2.7$, d.f. 2, 90, $P=0.08$
Mean (s.d.) score for social support	1.6 (0.6)	1.7 (0.5)	2.1 (0.6)	$F=10.4$, d.f. 2, 234, $P<0.000$
Expressed emotion[1]				
no. rated low	54	42	13	$\chi^2=11.1$, d.f. 2, $P=0.004$
no. rated high	17	24	18	
Affective style[1]				
no. rated benign	59	30	11	$\chi^2=29.2$, d.f. 2, $P<0.0001$
no. rated negative	12	36	20	

1. Ratings not completed for all patients.

in the past year, but not significantly. The poor-outcome group had significantly less adequate social support than either the good or the fair group. Patients whose families showed high EE were over-represented in the poorer outcome groups, as were those whose families had a negative affective style.

To assess their combined contribution to the GAS, those variables found to be significant in the univariate analyses were entered into a multiple stepwise regression with the GAS as the dependent variable (Table 3). The frequency of psychiatric admissions before entering the treatment programme contributed most to the variance in GAS, followed by the family affective style and social class. The cumulative R^2 for these factors explained 30% of the variance of GAS. In the multiple regression, social class, EE and the social support score did not reach the 0.05 level of significance and were not entered into the equation.

Discussion

Several points should be made before discussing these results. Firstly, this was a naturalistic study of the outcome of long-term lithium treatment. Patients had to remain in treatment for over a year to be included in the study, a selective factor which probably eliminated some patients with a poo prognosis. On the other hand, we know that some high-functioning patients elected to continue treatmen elsewhere. Secondly, although treatment decision were based on the clinical picture, patients wer generally compliant with lithium. It was of interes that the mean serum lithium levels for the good-outcome patients was 0.50, compared with 0.70 fo the poor-outcome group. The treating physician generally raised the lithium dose or added antipsychotic medications for patients who were becoming manic. An analysis of patients who had taken antipsychotic drugs in the past year indicated they had a poorer outcome, which was not an unsuspected finding. Overall, treatment outcome for this patient population is good. Over half the patients had no affective episodes in the year. However, many did, some to a significant degree. Likewise, many patients were experiencing significant problems in social adjustment. Alcohol and drug abuse remain serious problems for patients in active treatment, and are associated with poor outcome. Significant medical morbidity was found in the patients, a good deal probably attributable to alcohol and smoking. In the global assessment, 20% of the bipolar patients in active long-term treatment had a poor outcome.

Table 3
Multiple stepwise regression (with GAS as dependent variable)

Variable	R^2	Significance
Hospital admissions	0.18	$P<0.0001$
Affective style	0.28	$P<0.0001$
Social class	0.30	$P=0.02$

Coryell & Winokur (1982), in reviewing the course and outcome of bipolar disorder, point out that studies done since the availability of effective somatic therapies have higher reported relapse rates than the earlier reports by Kraepelin and Lundquist. Some of this discrepancy may be due to methodological ariables such as the treatment epoch of the study, e availability of psychiatric contact and thus the opportunity to observe less florid psychopathology, nd hospital admission policy. Four recent large udies of bipolar patients can be considered in omparing the present data: the Iowa 500 (Tsuang t *al*, 1979), the Zurich Study (Angst, 1986), the NIMH Collaborative Program on the Psychobiology f Depression Clinical Studies (Coryell *et al*, 1989), nd a recent naturalistic follow-up study from Chicago (Harrow *et al*, 1990). The methods, settings, nd treatment available at the time of these studies re not all the same, but some comparisons can be ade.

The Iowa 500 included 92 manic patients in a 0–40-year field follow-up, with data gathered from 972 to 1976. Thus the largest part of the patients' ourse of illness was in the pre-lithium era. Longerm outcome was analysed by marital, residential, occupational, and psychiatric status. For the manic patients, 19% had a poor marital status, 12% a poor esidential status, 21% a poor occupational status, and 25% poor psychiatric status. There were five suicides and five accidental deaths, both figures being igher than expected. The mean age at death was 60. The outcome data in the Iowa 500 study are surprisingly comparable with our data. In the Zurich study, 215 bipolar patients admitted between 1959 and 1963 were followed prospectively at five-year intervals until 1980, a period spanning the introduction of lithium into general clinical use. The method is not easily comparable with that of the present study. Only 24% of bipolars were in full remission. The suicide rate for bipolars was 6%, the death rate other than suicide while in an episode was 16%. The NIMH study was carried out in the 1980s, well into the lithium era. The method and treatment decisions are comparable to those in the present study. Outcome was measured for 53 bipolar I patients. Over a five-year follow-up, 11.3% of patients had no relapses into a major affective episode, 18.9% had only one relapse, and 69.8% had multiple relapses. The mean GAS at the last study contact was 59.1. On the psychosocial outcome measures, 67.9% had fair, poor, or very poor overall adjustment. The Chicago study found that over 40% of manic patients experienced a manic syndrome in the 1.7 years after admission. The authors stressed the importance of continued monitoring of patients on lithium and the consideration of alternative drug therapies. The overall treatment outcome for our patients is comparable with the recent studies cited above. Analysis of these studies indicates a residue of affective psychopathology, social problems, and mortality equivalent to our findings, and not very different from that of the pre-lithium epoch. Lithium has prevented or reduced the severity of episodes in many patients, but a significant treatment-refractory group remains.

In our analysis of the relationship of the demographic, historical, and psychosocial variables studied, the number of previous admissions to hospital was the strongest predictor of a poor outcome. This could be an indicator that the pathophysiology of the disorder differs among individual patients. Frequent episodes may be a marker of a more severe, recurrent type of disorder which continues to be evident during lithium treatment. Winokur & Kadramas (1989) have proposed that the tendency to a polyepisodic bipolar illness is genetic. Another explanation, not necessarily contradictory, is the kindling hypothesis of Post *et al* (1986). We did not have data on the phenomenology of the previous episodes, and consequently cannot comment on the predictive value of dysphoric mania described by Post *et al* (1989) or the relationship of psychotic symptoms and poor outcome (Rosen *et al*, 1983; Angst, 1986).

Interpreting the relationship of the psychosocial variables to outcome is complicated. The association with poor outcome of lower social class, inadequate social support, and unmarried status may point to a common denominator of a lack of resources to serve as psychological or economic buffers in stressful situations. The trend towards an association of higher life-events scores with poorer outcome also points in this direction. These findings are consistent with the biopsychosocial or stress-diathesis models currently used in thinking about depression and schizophrenia. However, there is an equally plausible explanation. Severe recurrent bipolar disorder can easily alienate social support, engender serious marriage problems, and cause a drift to lower social class both in patients and families. Likewise, some life events could be the result of an affective episode. It is often difficult to establish the direction of the cause-and-effect relationship.

The association of high EE and negative AS with poor outcome is consistent with the report of Miklowitz *et al* (1988). The data indicate that there is a significant association between having a good outcome and living in a benign environment, and conversely between poor outcome and a critical, overinvolved family. Again, it is difficult to establish a causal relationship between these family psychosocial variables and outcome. EE and AS, as operational concepts, measure somewhat different but related parameters of family interactions which may act as stressors to the bipolar patient and have a causal role in the expression of psychopathology. It is paradoxical that social support may be a buffer, but the same family providing the support may also contribute to stress. Again, there is an alternative explanation. High EE and negative AS may be reflections in the family of the same inherited affective trait which in the patient expresses itself as bipolar disorder. This question also needs further study. As Koenigsberg & Handley (1986) point out, there are unresolved methodological issues in studies of expressed emotion and outcome.

The following conclusions seem warranted. The past two decades have seen improvement in the recognition, treatment, and prevention of relapse of bipolar disorder. However, at least 20% of patients do not respond well to lithium treatment, and continue to have recurrent manic and depressive episodes and poor social adjustment. The best predictor of poor outcome found in this study was the frequency of hospital admissions before beginning lithium treatment, not demographic or social factors, and this may reflect differences in pathophysiology not yet understood. Perhaps new technologies becoming available in the neurosciences, for example molecular genetics and brain imaging, will provide leads to understanding differences in pathogenesis and point to more specific treatments. In the meantime, consideration of alternative pharmacological approaches is appropriate.

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Correlation of Negative Symptoms in Schizophrenia with Frontal Lobe Parameters on Magnetic Resonance Imaging

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Among 24 chronic schizophrenic patients, the 10 with high ratings for negative symptoms had significantly higher left-frontal: temporal–cortical T_2 ratios. This finding was unrelated to age, dose of medication, length of illness or handedness. No T_1 or T_2 changes were found to be associated with positive symptoms or tardive dyskinesia in the regions examined.

Magnetic resonance imaging (MRI) offers an opportunity of studying both neuroanatomy and tissue abnormalities in schizophrenia (Conlon & Trimble, 1987). Generally T_1-weighted images provide a clearer picture of neuroanatomy, while T_2-weighted images may be more sensitive to tissue pathology (Brant-Zawadzki, 1988).

Studies of neuroanatomy have produced contradictory results. An early report suggested that schizophrenic patients had smaller frontal lobes compared with controls (Andreasen *et al*, 1986). Other workers have not been able to replicate this finding (Smith *et al*, 1987; Kelsoe *et al*, 1988; Suddath *et al*, 1989). The corpus callosum has been found to be both larger (Matthew *et al*, 1985; Nasrallah *et al*, 1986) and smaller (Rossi *et al*, 1989; Stratta *et al*, 1989) in schizophrenic patients compared with controls. More recent investigations have found smaller temporal lobes in schizophrenic patients compared with controls (Suddath *et al*, 1989, 1990). However, the most consistent finding to date appears to be an increase in ventricular size (Kelsoe *et al*, 1988; Rossi *et al*, 1988*a*) which would be expected from earlier studies using computerised tomography (CT) (Shelton & Weinberger, 1986).

The T_1 and T_2 (spin–spin) relaxation times in MRI have been regarded as superior to CT measures in demonstrating tissue abnormalities (Cohen *et al*, 1988). Abnormalities, determined by measurement of relaxation times, can be detected even with a normal report on gross examination of the MRI scan (Conlon *et al*, 1988). Estimates of relaxation time have been inconsistent in schizophrenic patients compared with controls. Smith *et al* (1987) found an increase in signal intensity in grey and white matter compared with controls, especially in the left anterior region. This has not been confirmed by other investigators (Johnstone *et al*, 1986; Besson *et al*, 1987; Kelsoe *et al*, 1988; Rossi *et al*, 1988*b*). However, Besson *et al* (1987) were able to demonstrate an intriguing relationship between symptoms and T_1 values: patients with predominantly negativ symptoms had higher T_1 values in the left fronta white matter while patients with predominantl positive symptoms had higher T_1 values in the lef medial temporal structures. Patients with tardiv dyskinesia showed differences in T_1 values in th basal ganglia compared with controls and patient without tardive dyskinesia. Cortical values were no obtained.

The purpose of the present investigation was t examine signal intensity in a group of schizophreni patients with varying degrees of positive and negativ symptoms and tardive dyskinesia. We hypothesise that the previously reported T_1 changes with negativ and positive symptoms would also be found in th frontal and temporal cortex. In addition to T_1, w computed T_2 values, which may be more sensitiv to pathological change.

Method

Twenty-four schizophrenic patients (22 men, 2 women) aged 25–53 years (mean 36.8, s.d. 7.1) volunteered to participate in the study. All were out-patients receiving depot neuroleptic medication (average chlorpromazine equivalent dose of 631.3 mg, s.d. 502.7 mg). The diagnosis of schizophrenia was confirmed by a psychiatrist (PW) using the Structured Clinical Interview for DSM–III–R (Spitzer & Williams, 1985). Mean length of illness was estimated to be 14.0 (s.d. 5.7) years. All but one patient reported that they wrote and threw a ball with their right hand. None of the patients was found to have a history of head injury, drug or alcohol abuse or serious medical illness. One patient reported a history of three seizures before the age of eight. He was not treated with anticonvulsants. None of the patients was taking medication other than the neuroleptic with or without anti-Parkinsonian medication.

The MRI scans were performed on a 1.5 T superconducting magnet. Scanning parameters were: sagittal T_1-weighted image, TR = 400 ms, TE = 20 ms; coronal T_1-weighted image, TR = 600 ms, TE = 20 ms; and coronal spin–echo sequences, TR = 2000 ms, TE = 20 ms, 40 ms, 60 ms, 80 ms. Slice thickness was 5.0 mm, field of view 20 cm and matrix size 256 × 128 with two

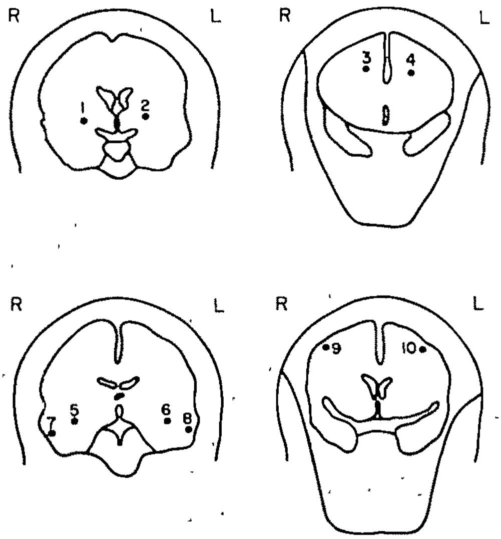

Fig. 1 Approximate locations for regions of interest: 1,2 putamen; 3,4 middle frontal white matter; 5,6 medial temporal white matter; 7,8 temporal cortex; 9,10 frontal cortex.

excitations. Average T_1 and T_2 signal intensities were determined for regions of interest (ROI) including the dorsolateral pre-frontal cortex, middle frontal lobe white matter, temporal cortex, medial temporal lobe white matter and lentiform nuclei, on both sides. The approximate locations of the ROI are shown in Fig. 1. As a check for reliability, repeated measures were done at 24 locations in a patient participating in another study. The mean coefficient of variability for T_1 was 4.0% and for T_2 it was 1.2%.

Partial-volume effects of adjacent cerebrospinal fluid (CSF) and white matter can affect the reliability of cortical relaxation times. This problem was minimised by careful localisation and a small ROI (3 mm × 3 mm). Field non-homogeneity can also lead to unreliable T_1 and T_2 estimates. Three approaches were taken to this problem. Firstly, magnetic strength on the scanner was standardised by a 'phantom' monthly and calibrated daily. Secondly, T_2 signal intensity was determined for five normal elderly subjects, who were participating in another study, to look for lateral differences which could reflect lack of homogeneity in the magnetic field. No lateralised differences were found in frontal regions. Finally, the ratios of frontal: temporal estimates were calculated to help control for generalised variation in field homogeneity.

Ventricular size was rated by visual examination of the images by a radiologist (DP) who was unaware of the other relevant data in the study. Ventricular size was rated on a three-point scale, with 0 indicating normal size and 2 indicating the largest ventricles of the sample. Similar techniques have been shown to provide reliable estimates of ventricular size in a previous study (Lee *et al*, 1987).

Negative and positive symptoms were rated by a psychiatrist (PW) without knowledge of MRI results using the Scale for the Assessment of Negative Symptoms (SANS; Andreasen, 1984*a*) and the Scale for the Assessment of Positive Symptoms (SAPS; Andreasen, 1984*b*). The mean SANS level for the group was 21.2 (s.d. 14.2). The mean SAPS level was 5.2 (s.d. 7.8). Tardive dyskinesia was also rated by a psychiatrist (PW) without knowledge of MRI results using the Extrapyramidal Symptom Rating Scale (Chouinard *et al*, 1980). The mean rating for patients with tardive dyskinesia was 2.7 (s.d. 1.3).

The patients were divided into a high-SANS/high-SAPS group ($n = 6$) on the basis on the total scores on the SANS of 20 or over and total scores on the SAPS of 5 or over. Groups of high-SANS/low-SAPS ($n = 4$), low-SANS/high-

Table 1
Mean T_2 and T_1, values (s.d.) in frontal regions in patients with high and low SANS and SAPS scores

	High SANS, high SAPS ($n = 6$)	High SANS, low SAPS ($n = 4$)	Low SANS, high SAPS ($n = 3$)	Low SANS, low SAPS ($n = 11$)
T_2 *values*				
Frontal cortex				
left	68.0 (4.5)[1,2,3]	62.9 (2.2)[1]	61.3 (1.3)	63.7 (5.1)
right	65.6 (6.9)	65.6 (5 7)	60.4 (9.7)	63.4 (5.9)
Frontal white				
left	56.3 (1.6)	53.9 (2.0)	54.9 (1.6)	55.4 (2 4)
right	54.8 (1.6)	53.5 (2.8)	52.5 (1.8)	54.9 (2.6)
T_1 *values*				
Frontal cortex				
left	1516.6 (178.0)	1684.0 (265.8)	1762.6 (158.0)	1584.0 (332.9)
right	1374.7 (122.9)	1574.9 (251.4)	1418.8 (70.5)	1415.5 (355.8)
Frontal white				
left	716.3 (84.2)	702.6 (54.5)	657.8 (84.7)	738.6 (73 0)
right	726.7 (51.4)	648.8 (21.6)	651.2 (67.3)	699.3 (50.9)

1. Differs as a combined group from patients with low-SANS scores, $P < 0.02$.
2. Differs from low-SANS/low-SAPS group, $P < 0.02$.
3. Differs from low-SANS/high-SAPS group, $P < 0.025$.

SAPS ($n=3$) and low-SANS/low-SAPS ($n=11$) were also determined by these cut-off scores. Patients without tardive dyskinesia ($n=10$) were compared with those with tardive dyskinesia ($n=14$).

Differences between groups were assessed with the Mann–Whitney U test, as a normal distribution of the data was not assured. As this was partly a replication study, α was set at 0.05 without a Bonferroni correction for white-matter regions. Bonferroni corrections are reported for cortical regions which were not examined in the previous study (Besson *et al*, 1987). Probability values are for two-tailed tests.

Results

Gross examination of the MRI scans was generally unremarkable. However, cortical atrophy was noted in three patients from the high-SANS groups and in three patients from the low-SANS groups. Three patients had an increase in signal intensity of uncertain aetiology, one in the left parietal, one in the right frontal, and one in the left frontal region. Two patients from the high-SANS groups and seven from the low-SANS groups had a ventricular rating of 1. One patient from each of these two groups had a rating of 2. All other subjects had normal ventricular ratings.

The T_2 values in frontal regions in patients with high and low SANS and SAPS scores are shown in Table 1. Patients in the high-SANS/high-SAPS group have significantly higher T_2 values in the left frontal cortex compared with the low-SANS/low-SAPS group ($u=7.5$, $P<0.02$) and the low-SANS/high-SAPS group ($u=0$, $P<0.025$). Both the high-SANS groups differed from the low-SANS groups ($u=27$, $P<0.02$). These differences are not significant when the Bonferroni correction is applied to control for multiple testing.

The T_2 ratios between frontal and temporal cortex and white matter are shown in Table 2. Greater differences between the high-SANS groups and the low-SANS group ($u=16$, $P<0.002$) are seen using this method. The difference remained significant after applying a Bonferron correction for multiple testing (α set at 0.003 for 1 comparisons). Differences among the subgroups were no significant after this correction. There were no statistically significant differences between high-SAPS and low SAPS groups.

There were no statistically significant differences between high-SANS and low-SANS groups on the chlorpromazine equivalent dose of medication, age, length of illness o handedness. There was no statistically significant difference between the high-SAPS groups and low-SAPS groups on T_2 in the frontal cortical region. The mean for T_2 estimates on the left of 63.3 (s.d. 4.5) were very similar to that o the right, of 63.9 (s.d. 6.9), in all subjects combined. No statistically significant differences in T_2 values in the left frontal cortex were seen in the six patients with cortica atrophy (mean 61.9, s.d. 2.0) compared with those without cortical atrophy (mean 63.7, s.d. 4.9). There were no other statistically significant differences between the four groups on T_2 values in frontal white matter.

The T_1 values in frontal regions in patients with high- and low SANS and SAPS scores are also shown in Table 1. T_1 values were not available for one subject in each of the high-SANS/high-SAPS group and the low-SANS/low-SAPS group. There were no statistically significant differences between groups. There were also no statistically significant differences between the four groups in the temporal cortex or white matter on T_1 or T_2 values. T_1 ratios between frontal and temporal cortex and white matter were also calculated (Table 2) but there were no statistically significant differences between groups.

Patients with tardive dyskinesia showed no statistically significant differences from those without tardive dyskinesia in either the right or left lentiform nucleus on either T_1 or T_2 values.

Table 2
Mean T_2 and T_1, frontal:temporal ratios (s.d.) in patients with high and low SANS and SAPS scores

	High SANS, high SAPS	High SANS, low SAPS	Low SANS, high SAPS	Low SANS, low SAPS
T_2 *values*				
Cortex				
left	1·07 (0.07)[1,2,3]	1.00 (0.06)[1]	0.94 (0.05)	0.93 (0.07)
right	1.07 (0.06)	1.01 (0.10)	0 93 (0.14)	1 01 (0.08)
White matter				
left	1.02 (0.05)	1.05 (0.02)	1.00 (0.01)	0.99 (0.07)
right	1.01 (0.05)	1.01 (0.05)	1.01 (0.05)	1.01 (0.06)
T_1 *values*				
Cortex				
left	1.12 (0.18)	1.24 (0.23)	1.30 (0.26)	1.06 (0.13)
right	1.03 (0.09)	1.23 (0.16)	1.12 (0.21)	1.12 (0 24)
White matter				
left	1.01 (0.07)	0.97 (0.18)	1.02 (0.06)	1.13 (0 06)
right	1.06 (0 07)	0.96 (0.12)	1.08 (0.06)	1.08 (0.06)

1 Differs as a combined group from patients with low-SANS scores, $P<0.002$.
2 Differs from low-SANS/low-SAPS group, $P<0.02$.
3. Differs from low-SANS/high-SAPS group, $P<0.05$

Discussion

he T_1 changes in the left frontal white matter in atients with high ratings for negative symptoms esson *et al*, 1987) were not found in this study. either did we find a relationship between T_1 values medial temporal structures and positive symptoms, or between T_1 values in the lentiform nucleus and rdive dyskinesia. Some of these differences could be xplained by differences in procedure: a magnet of uch greater strength (1.5 T) was used in this study an in the previous report (0.08 T); pulse sequences ere standardised in the present study; and the SANS nd the SAPS were used rather than the Krawiecka scale.

However, a statistically significant relationship was emonstrated between increased T_2 frontal : temporal atios in the left temporal cortex and negative ymptoms. This may reflect pathology in this part f the brain. T_1 and T_2 relaxation times are in-luenced by pathophysiological processes (Bottomley t *al*, 1987; Crooks *et al*, 1987; Johnson *et al*, 1987). T_2 most closely mirrors changes in water content, hereas T_1 may be influenced by both water ontent and the effects on water of membrane hanges (Besson *et al*, 1989). Certain pathological onditions can give different signal readings. For xample, tumours demonstrate decreased signal ntensity on T_1-weighted images and increased signal ntensity on T_2-weighted images (Hyman & Gorey, 988). Thus, our findings of increased T_2 values in rontal regions may indicate a pathological process ven without T_1 changes.

Increased left T_2 frontal : temporal ratios is in eeping with a suggestion that dysfunction in dorso-ateral pre-frontal cortex may be related to negative ymptoms (Weinberger, 1987). Until recently, the vidence has suggested that the abnormality in patients is more likely to be functional than structural. Lack of activation of frontal regions during cognitive tasks in schizophrenic patients compared with normals has been demonstrated using positron emission tomography (PET) (Cohen *et al*, 1987), cerebral blood flow (Weinberger *et al*, 1988) and electroencephalography (EEG) mapping (Williamson *et al*, 1989). In the latter study, lack of activation in frontal regions correlated with negative but not positive symptoms.

Evidence for structural change in frontal regions in schizophrenic patients primarily comes from pathological and magnetic resonance spectroscopy. Benes *et al* (1986) showed decreased frontal neuronal density in schizophrenic patients compared with normals. Keshavan *et al* (1989) found increased phosphodiester and decreased phosphomonester resonances in the left dorsolateral pre-frontal cortex of drug-naive schizophrenic patients, indicating an increased breakdown and decreased synthesis of cell membranes. However, correlations with negative symptoms were not examined.

Our findings do not necessarily contradict earlier investigations (Suddath *et al*, 1989, 1990) that have found temporal structural changes. The present study did not include a normal control group, so it is possible that the T_2 values in both frontal and temporal regions could be higher than in normals. The location for our ROI in the temporal cortex is not near the hippocampus, where the largest differences have been observed (Suddath *et al*, 1990).

A number of limitations are acknowledged in this study. Firstly, the division of patients into groups with predominantly positive or negative symptoms in this study was, to some extent, arbitrary, as the two types of symptoms are not necessarily negatively correlated with each other (Pogue-Geile & Harrow, 1985; Moscarelli *et al*, 1987). However, the left T_2 frontal : temporal ratios were higher in those scoring high for negative symptoms, irrespective of scores for positive symptoms. Also, no relationship was seen between the T_2 frontal : temporal ratios and scores for positive symptoms.

Controlling for multiple comparisons is always difficult for neuro-anatomical studies involving a number of sites. The relationship between T_2 and negative symptoms in the left dorsolateral cortex was not significant when comparisons using this measure were corrected by the Bonferroni procedure. However, the relationship between left T_2 frontal : temporal ratios and negative symptoms remained significant after the same procedure.

There are inherent difficulties in obtaining MRI intensity values. Field non-homogeneity was minimised by calibrating with a 'phantom' substance, and the use of cortical and white-matter ratios. This strategy resulted in values which were similar in comparable regions, with relatively low standard deviations between subjects. Repeated measures in one subject demonstrated a high degree of reliability. Partial-volume effects were minimised by a small ROI and careful localisation.

The effects of chronic medication cannot be controlled completely, but there were no differences between the dose of medication and the length of illness between those patients scoring high and low for negative symptoms.

In conclusion, previous T_1 correlates of positive and negative symptoms were not replicated. However, patients with high ratings of negative symptoms had significantly higher T_2 frontal : temporal ratios in the left dorsolateral pre-frontal cortex than those patients with low ratings of negative symptoms.

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Symptoms of Post-traumatic Stress Disorder in Falklands Veterans Five Years After the Conflict

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A group of 64 Falklands war veterans who were still serving in the British Army were studied and compared with a group of matched controls. Half the veterans reported some symptoms of post-traumatic stress disorder, and 22% were rated as having the complete PTSD syndrome. Presence of the symptoms was associated with intensity of combat experience and the retrospective report of emotional difficulties in the initial period on return from the war.

Post-traumatic stress disorder (PTSD) was defined n DSM-III (American Psychiatric Association, 1980) as the development of characteristic symptoms following a psychologically traumatic event that s generally outside the range of normal human experience. This reification of a concept into a syndrome and a respectable diagnostic entity was an important event in the history of stress-related disorder. It was, however, far from being the first recognition of psychiatric symptoms following traumatic events. Daly (1983) reported that Samuel Pepys recorded symptoms in himself in the aftermath of the Great Fire of London which would fulfil DSM-III criteria for PTSD. Foy *et al* (1987) alluded to clinical presentations similar to PTSD in the American Civil War, and Freud (1921) theorised on the aetiology of war neurosis. Adler (1943) wrote what is perhaps the first extensive and systematic description of a traumatic syndrome following a civilian catastrophe in his accounts of the aftermath of the Cocoanut Grove fire.

Andreasen (1980) pointed out that the fate of PTSD seems to have been linked with the history of warfare. Previously, surges of new papers have reflected relearning when conflict has followed a period of peace. For example, it is generally accepted that the hard-learned lessons of World War I had to be revived and retaught in World War II. Andreasen noted the subsequent appearance in DSM-I in 1952 of 'gross stress reaction', although she pointed out that this was quite different from PTSD in that it was considered to be a brief and reversible reaction, the diagnosis of which should be altered if the condition became chronic. The condition was omitted from DSM-II in 1968, only to be reborn as PTSD in DSM-III following the Vietnam war.

The predominance of papers concerning combat-induced PTSD is a consequence of two factors. One is that war is readily recognisable as being traumatic and outside the range of usual human experience, but is nevertheless all too common and involves large numbers of identifiable subjects. The other is that PTSD was not immediately generally recognised as a consequence of other stressors. More recently, there have been reports of PTSD following a range of traumatic experiences, including volcanoes (Shore *et al*, 1986, 1989), violent crime (Loughrey *et al*, 1988; Kilpatrick *et al*, 1989; Dahl, 1989), occupational accidents (Schottenfeld & Cullen, 1986), sexual abuse (Deblinger *et al*, 1989), immigration (Cervantes *et al*, 1989) and an Australian bush fire (McFarlane, 1987).

Major sources of combat-related research have been the experiences of Vietnam and the Middle East. Many authors have reported chronic adjustment problems and or PTSD in Vietnam veterans (Van Putten & Emory, 1973; Figley & Leventman, 1980; Keane & Fairbank, 1983; McFarlane, 1988), with Foy *et al* (1987) producing a review of nine controlled studies. Yager *et al* (1984) pointed out that the particular problems reported following the Vietnam war have been attributed to "the stressful nature of combat in an anti-guerrilla war, to the veterans' moral doubts about their actions in Vietnam, and to the American peoples' unwillingness to welcome or sometimes even to acknowledge the veterans of an unpopular war". It has been repeatedly suggested that the unpopular and controversial nature of this drawn-out war and the consequences thereof increased the likelihood of problems. The Middle East has also produced much research (Solomon *et al*, 1985; Bleich *et al*, 1986*a*, *b*; Garb *et al*, 1987) as a result of the repeated conflict and continuous military tension in this region.

In contrast, the Falklands war produced very few reports on the subject of PTSD except for a review of the reasons behind the low initial PTSD rate by an American observer (Price, 1984), and a set of brief case histories by Jones & Lovett (1987). This has led to a hostile press (Smith, 1988; *Daily Mail*, 1988) and to claims that the Ministry of Defence has ignored the fate of veterans.

This paucity of research may be associated to some extent with the factors which differentiate the Falklands war from the recent American and Israeli experiences, and which Price associated with the low rate of immediate psychiatric casualties. The Falklands war was brief. It lasted a total of 74 days, with the land campaign totalling only 25 days. For the British at least, it was offensive rather than defensive, with the total number of casualties being comparatively small – 237 killed and 777 wounded. Unlike the Vietnam experience, the Falklands veterans were welcomed home as heroes on a tide of media-stimulated patriotism. This was a brief, popular, victorious, circumscribed war which involved comparatively small numbers of regular troops and apparently had a low psychiatric casualty rate. It has been suggested that this 'success' of the war, and the fact that the veterans were hailed as returning heroes, led to a failure to recognise their problems. This in itself might tend to sustain the problems and induce chronicity. Despite Price's concentration on the low rates of early casualties, Jones & Lovett contended that "the comfortable conclusion that the Falklands war had remarkably few psychiatric casualties is not tenable", and suggested that delayed or chronic reactions were likely to exist.

This paper aims to identify potential examples of such reactions and to look for predictors or markers thereto. A number of previous studies of the long-term effects of trauma have had problems of preconception or bias, or have used inappropriate controls. These problems have been highlighted by Green *et al* (1985), while La Guardia *et al* (1983) have demonstrated the potentially problematical effects of prior priming or 'set'. They demonstrated that veterans reported more psychopathology when inquiries were made following suggestions of adverse effects of exposure to combat than when introductions pointed out the positive and enriching effects of such experiences. The present study aims to avoid such problems by avoiding comparison of servicemen with civilians, using individually matched controls, and using a neutral set in a non-clinical situation.

Method

The subjects for the study were serving members of unit X, a battalion-sized unit of the British army, who had been with the unit in the South Atlantic in 1982 during the Falklands conflict. The controls came from unit Y, a unit exactly similar to unit X, being in the same Division, having the same structure and composition, rotating through the same duties, and drawing recruits from the same pool; but unit Y remained on home duties during the Falklands conflict. Both units are composed of elite troops who are selected volunteers.

The study involved the administration of questionnair to all available members of both units, who were approach in normal working groups in a working environme without any prior preparation and without any primi about medical or other sequelae of trauma. Anonymity w guaranteed.

Because of the intentional lack of prior notice, part unit X was absent on duty at the time of the study. On 55% of the unit were available, of whom over 90% returne usable questionnaires. The unit nominal roll confirmed th the sample accurately represented the composition of th unit by age, rank, marital status, length of service an nature of employment. It also confirmed that the 55% o the unit included 54% of those still serving who had serve in the Falklands conflict. Clearly non-veteran unit membe could not be used as controls so 450 members of unit Y comprising 90% of the available subjects, also complete the questionnaires.

Controls from unit Y were individually matched t veterans from unit X by an investigator blind to questionnair scores. They were matched exactly for rank and marit status, within one year for length of service, and withi less than 18 months for age.

The instruments used were the Service Experienc Questionnaire (SEQ), a modified version of an instrumen developed by M. O'Connell for use with Naval personnel and the General Health Questionnaire (GHQ) of Goldber (Goldberg, 1972, 1978; Goldberg *et al*, 1974). The GHQ is a well validated instrument, originally intended for use in general practice studies but often used for community-based research. It is recognised that it was intended for the detection of recent and minor rather than long-term or severe psychological disability. No attempt was made to revalidate the questionnaire in this study. All subjects were asked to complete the 60-item version of the GHQ. They were considered to be GHQ-positive (GHQ+) if they scored 12 or over, and GHQ-negative (GHQ−) if they scored 11 or less.

The first part of the SEQ recorded simple demographic data and asked about events and perceptions in May 1982. It recorded marital status, pregnancy and childbirth at that time, as well as losses of near ones through death then and subsequently. It also inquired about a sense of belonging to the unit and about preparedness for combat at the relevant time.

Only those who had taken part in the land battle completed the remaining three parts of the SEQ, which comprised Combat Experience, Subsequent Experience, and PTSD Symptomatology. Combat Experience included

(a) bad weather at sea; action stations at sea; air raids at sea; damage to the ship
(b) casualties in the sub-unit; wounding of a close friend; death of a close friend; being wounded
(c) assisting with own casualties; assisting with enemy casualties; disposing of bodies
(d) directly killing someone
(e) gallantry awards.

Subsequent Experience included the following on initial return to the UK:

(a) hero – feeling that people made you out to be more of a hero than you were
(b) understand – feeling that people did not understand how you felt
(c) talking – difficulty talking to others about your experiences
(d) feelings – strong and disturbing emotional feelings
(e) sleep – any disturbances
(f) relating – trouble relating to people near to you.

It also included hypnotic use before and after May 1982, nd increased use of alcohol after May 1982.

PTSD Symptomatology asked whether subjects had xperienced the symptoms of PTSD as listed in DSM-III uring the two months prior to the study. All members of he veterans group were considered to fulfil criterion A as result of their Falklands experience. This assumption seems reasonable as all subjects reported actual combat xposure and were members of a single unit which remained nited and was documented as being involved in intense ombat. They were considered as 'admitting to symptoms of PTSD' (PTSD+) if they responded positively to at least one of the symptoms from criteria B and C and to two of hose from criterion D. They were considered as 'admitting o some symptoms of PTSD' (PTSD?) if they fulfilled the criteria for two of B, C and D.

Because of the comparatively small groups involved, and the type of data, parametric tests of significance were not used in the analysis. The sign test for untied pairs and exact test for correlated proportions were used for paired data; and χ^2 tests with Yates' correction or Fisher's exact probability test were used for unpaired comparisons.

Results

Falklands veterans differed from the overall control group in that they were older, of higher rank, of longer service, and more likely to be married. These differences are a function of age and reflect the fact that the veterans were all serving in May 1982. The veterans also had higher GHQ scores and a higher rate of GHQ+ than members of unit Y (23.4% v. 10.2%).

Socio-demographic data for the 64 veterans and their matched controls are shown in Table 1. Rank and marital status are not included as they were exactly matched. Members of both groups saw themselves as well prepared for war in May 1982, and saw themselves as being very much a part of their respective units. Births in the 12 months prior to the Falklands and pregnancies at the time were equally represented in both groups. Both groups reported equal numbers of deaths of people close to them in the 12 months prior to the conflict. Veterans were more likely to report such deaths after the war, but the difference did not reach significance (sign test, untied pairs = 14, $n+ = 11$).

Veterans had a higher mean GHQ score than controls (sign test, untied pairs = 51, $n+ = 36$, $P < 0.02$), and a higher rate of GHQ-positives (23.4% v. 7.8%, exact test for correlated proportions, untied pairs = 13, $c = 13$, $P < 0.05$). In neither group were GHQ scores related to age, rank, marital status or length of service.

Table 1
Socio-demographic data for veterans and matched controls

	Veterans ($n = 64$)	Controls ($n = 64$)
Mean age: years	27.5	27.55
s.d.	4.95	4.98
range	23–42	22–43
Service: years	9.2	9.2
s.d.	4.6	4 7
range	3.6–22	3.5–22
Married in 1982	18	18
Baby born in previous year	3	3
Wife pregnant in May 1982	4	5
Death of near one in previous year	3	3
Death of near one since 1982	14	6
GHQ mean score	7.0	3.19**
s.d.	9.1	7 0
range	0–44	0–37
GHQ-positive	15	5 *

*Exact test for correlated proportions, untied pairs = 13, $c = 13$, $P < 0.05$.
**Sign test, untied pairs = 51, $n+ = 36$, $P < 0.02$

Veterans and PTSD symptoms

Fourteen veterans (22%) were rated PTSD+ and 18 (28%) PTSD?, so that half of all Falklands veterans studied described symptoms fulfilling three or more of the four criteria for PTSD. Only 18 of the sample (28%) who had been exposed to the trauma of combat did not admit to any symptoms of PTSD.

PTSD scores were not related to age, rank or length of service. There were no differences in the incidence of studied life events between those who were and were not PTSD+ (Table 2).

GHQ-positive veterans were also likely to admit to symptoms of PTSD. Of the 15 who were GHQ+, eight were PTSD+, five were PTSD? and only two were PTSD−. Thus the excess of GHQ+ occurs in PTSD+ veterans, with the GHQ+ rate for PTSD+ veterans being 57% and that for the rest being 6% (Fisher exact test, $P = 0.002$).

Table 2
PTSD symptoms and life events in veterans

Life events reported by veterans	Veterans rated PTSD+ ($n = 14$)	Veterans not PTSD+ ($n = 50$)
Married at the time of the war	5	13
In the year before the war:		
wife gave birth	2	1
wife was pregnant	0	4
relative died	0	3
moved house	0	3
Death of near one since the war	3	11

Table 3
Reported combat exposure and PTSD symptomatology

Combat-related event	All veterans ($n=64$)	PTSD+ ($n=14$)	Not PTSD+ ($n=50$)
Subject wounded	10	2	8
Friend wounded	56	13	43
Friend killed	48	12	36
Helped with casualty treatment	50	14	36*
Helped treat enemy casualties	27	7	20
Helped bury dead	17	3	14
Killed someone	55	14	41
Cumulative combat exposure score ⩾9	47	14	33**

PTSD+ v. not PTSD+ Fisher exact test, $^*P<0.05$, $^{**}P<0.02$

Table 4
Subsequent experience and PTSD symptoms

	Number ($n=64$)	PTSD+ ($n=14$)	Not PTSD+ ($n=50$)
Hero	54	12	42
Understand	50	13	37
Talking	38	12	26[1]
Feelings	30	13	17[2]
Sleep	26	12	14[3]
Relating	19	11	8[4]
Total >4	18	12	6[4]
Alcohol use up since 1982	32	10	22
Hypnotic use since 1982	2	2	0

1. $\chi^2=3.86$, $P<0.05$
2. $\chi^2=12.9$, $P<0\ 001$
3 $\chi^2=12\ 8$, $P<0.001$
4. Fisher exact, $P<0.001$

Combat experience

All veterans went to the South Atlantic by sea. All but one stoic reported that they had suffered significantly bad weather while on board ship, and almost all reported that they had been at action stations and under air-raid attack, although the ship did not suffer significant damage.

The land-battle combat exposure of veterans is demonstrated in Table 3. It reflects the nature of the campaign, a brief offensive war. Most of the veterans had close friends wounded and killed, and had had to assist with casualty management. About 15% had been wounded to some degree, and over 85% believed that they had probably or definitely killed others.

Veterans who were PTSD+ showed a non-significant trend to be more likely to have lost friends through wounding or death, and to have killed the enemy. They were more likely to have actively assisted in the management of casualties. When a simple cumulative combat-exposure score was calculated for each subject, all PTSD+ subjects scored ⩾9, whereas only two-thirds of others did so (Fisher exact test, $P<0.02$). At a cut-off score of 8/9, the combat-exposure score was a 100% sensitive but only 34% specific indicator of PTSD.

Subsequent experience

Veterans' responses to inquiries about their experiences on return after the conflict are summarised in Table 4. The first part relates to feelings or experiences in the first weeks after return to the UK. Most veterans complained that they were treated as more heroic than they felt on their return, and that those who had not been there could not understand them. However, veterans who admitted to full PTSD symptomatology five years after the event were significantly more likely to state that on their immediate return to the UK they suffered problems, including problems talking about their experiences, strong disturbing emotional experiences, disturbed sleep, and problems relating to near ones. Veterans who were PTSD+ were more likely to report four or more of these six problems than those who were not PTSD+. When this retrospective score was used as an indicator of PTSD symptomatology five years later, it gave a sensitivity of 85.7% and a specificity of 88%.

Hypnotic use was rare in all veterans. No subjects admitted to use of hypnotics prior to the Falklands conflict, and only two to their use subsequently.

An increase in alcohol consumption since 1982 was admitted by half the veterans. PTSD+ veterans were more likely to report increased alcohol intake, but the difference did not reach significance.

Discussion

This study demonstrates a higher rate of self-reported minor psychological symptoms in Falklands veterans than in a control group. The GHQ scores for the control group and for non-PTSD subjects were equivalent to those found in other non-clinical studies of British servicemen (O'Brien, 1983). The choice of unit X rather than unit Y joining the Falklands task force was made on logistic grounds, and mental health was not a factor. Apart from the Falklands, the groups had equivalent service experience both before 1982 and since, and individual subjects were carefully matched. It seems, therefore, that the difference in reported psychological symptoms is related to the Falklands experience or sequelae thereof.

There were no other significant differences between veterans and controls in the variables measured. However, veterans tended to be more likely to report the loss through death of "someone belonging to you" since the time of the Falklands. This may be a spurious observation, but is potentially interesting. Presumably PTSD or other sequelae of stress do not result in a higher mortality in relatives of subjects. Therefore, the veterans must attach a greater significance to death or see a wider range of people s belonging to them. Both previous studies and the iagnostic criteria for PTSD emphasise a narrowing f relationships and problems relating to significant thers, and so it seems likely that it is a greater ignificance of death which is of importance. The xperience of an imminent and sustained threat to ife, along with the witnessing of and participation n the death of others, could increase the awareness of eath. This would sensitise survivors to subsequent xperience of death.

Raphael (1986) has reported the use of the GHQ n several investigations of the short- and medium-erm effects of a major stress or catastrophe. In this study the GHQ-positive rate was 2½ times that of controls five years after the event. This is perhaps surprising, as the GHQ is known to under-rate chronic symptoms because of its intentional concentration on recent change in symptoms. However, the veterans' symptoms might be expected to change in response to the reminders or triggers associated with continued armed service. They could also be expected to have increased at the time of the study, exactly five years later, because of an 'anniversary reaction'.

In the Falklands the rate of immediately recognised psychiatric casualties was only 2%, and the estimated total rate 7%, of all wounded. This is comparable with rates in the early part of the Vietnam war. Unusually as regards recent conflicts, there were no mental health professionals deployed with the land forces in the Falklands. Accepted doctrine suggests that the presence of integral psychiatric services in front-line units will reduce psychiatric disability. The rationale for this is that the treatment principles of immediacy, proximity and expectation (of recovery) allow the return of men to duty and prevent chronic disability (Solomon & Benbenishty, 1986). Thus psychiatric intervention would be expected to increase the apparent rate of acute psychiatric problems by increasing detection, but to reduce the rate of chronic disability. In this study, 22% of veterans reported symptoms fulfilling the diagnostic criteria for PTSD five years later, while only 28% did not report any PTSD symptoms. The PTSD rate seems high in light of the very low reported rates of acute PTSD following the conflict. It is lower than the 43% reported by Frye & Stockton (1982) in Vietnam veterans ten years after the conflict, but higher than the 16% prevalence reported by Solomon (1989) in non-help-seeking Lebanon war veterans one year after the war. This raises the possibility of a continued increase in rates due to delayed-onset PTSD. However, the Centers for Disease Control Vietnam Experience Study (1988) showed a lifetime rate of 15% in Vietnam veterans 10–15 years later, and Solomon *et al* (1989) reported that only 10% of late cases showed true delayed onset.

Other studies of PTSD have considered the significance of predisposing or predictive factors, although the results have not always been consistent. This study is in general agreement with most of the Vietnam studies in that age, marital status, nature of duties, length of service and prior psycho-social stressors have not been found to be significant predictors of PTSD. Race was not studied as the group was wholly Caucasian. Most subjects had completed five years of secondary education. As in all other studies in which it was assessed, combat exposure was found to be of considerable significance.

Some Vietnam studies have related high rates of PTSD and post-military adjustment problems to drug abuse (Nace *et al*, 1978). Unlike the Vietnam experience, there have been no reports of a drug abuse problem during or following the Falklands conflict. There are no published systematic studies of drug abuse in the British Army. Drug abuse is not consistent with continued service, and illicit drug use does not have a generally accepted place in this sub-culture of regular soldiers. There is no evidence of increased rates of reported drug abuse or discharge from the service for drug offences in the population under study. Similarly, the use of prescribed psychotropic medication such as hypnotics is neither encouraged nor popularly accepted in this sub-culture, so that low usage rates are not surprising. Alcohol is the only generally accepted drug and there was a non-significant trend for PTSD-reporters to be more likely to report an increase in alcohol consumption.

Studies of Vietnam veterans have related experience in the early weeks after return from the war with PTSD. Raphael (1986) has associated a high rate of delayed or chronic problems with the following: a lack of helpfulness and inability to talk with the family; the immediate discharge of veterans so that they were often home within 48 hours and therefore did not have a transitional period in which they could adjust to events and did not have contact with other military personnel with whom they could talk and work through their experiences; and an ambivalent or negative image of the conflict.

The subjects in this study were sent home on leave within 48 hours of flying back to the UK. Those who reported PTSD symptoms were more likely to complain of problems relating to, and talking with, their relatives. Although they were not rejected on their return, many Falklands veterans experienced being inappropriately lionised and treated as popular heroes. There was a disparity between their own and the general population's perception of their experiences.

In the absence of others around them who had shared the experience, this lack of fit between their own perceptions and the perceptions of others, with expressions of celebration and heroism which they found inappropriate, is likely to have interfered with the process of assimilation of the experiences into self. The retrospective reports of early problems by those who later admit to PTSD symptoms is likely to be a valid observation, rather than a retrospective 'search for meaning'.

Many but not all of the Vietnam studies have been either of recognised patients or of complainants and attenders at veterans' outreach centres, whereas subjects in this study were not complainants, were still serving servicemen, and had not been previously identified as being disabled in any way by their symptoms. What is the significance of their symptoms? There seems to be a lack of evidence of actual disability in this group of people who did not spontaneously complain of symptoms and appeared to be functioning normally.

This raises the question of the differentiation which Raphael (1986) makes between "distress and disease". The existence in this group of PTSD symptoms and of GHQ-identified symptoms is established. Yet the men either did not see themselves as ill, or had not decided to consult. They might have decided not to consult because they saw the symptoms as natural, non-pathological sequelae of their experiences, or as inevitable or deserved effects with which they had to cope. Alternatively, they might have been unable to envisage any possibility of effective help, or might have felt that sub-cultural pressures prevented help-seeking behaviour. Although they admitted symptoms, this group did not show evidence of poor psycho-social function on the measures used. They did not have a high divorce rate (4.7%) and examination of records showed that their career progression equated with that of controls and they did not show an excess of disciplinary problems or psychiatric referral.

All the subjects in this study were still serving soldiers five years after the conflict. Continued military service must provide constant reminders or 'trigger' experiences. It seems likely that this would tend to lead to subjects with chronic PTSD migrating away from the military. Such pressure to leave would be opposed by the "social support and cohesion offered by the men of his fighting unit and his leaders" described by Raphael. The group would replace other relationships which were unable to fulfil a supportive role. This would result in sufferers being less likely to leave the service. In fact, following the initial 12 months after the conflict, when deaths and major disabilities resulted in a major difference, the discharge rates for units X and Y for all causes we not significantly different. It is likely that the mo severely disabled will have left as a result of the own or the executive's decision. Those who are ab to function despite symptoms and who find th military group supportive are likely to continue t serve.

It seems likely that continued membership of group, such as that of soldiers who were Falkland veterans, may serve two opposing functions. provides a milieu in which there is a commonalit and an acceptance so that members are supported At the same time it may tend to perpetuate symptom and prevent resolution of conflict. If the latter, on must be aware of the possibility of the appearanc of latent disability on subsequent separation fron the group.

In light of the presence of symptoms in servin veterans, a similar study of discharged veterans seem appropriate in order to examine differences. A ver high response rate would be needed because o possible biases acting in the case both of non-responders (Weiseath, 1989) and of those who wer not traceable. Another important area for furthe study is the significance of PTSD symptoms in non-complainers. Dohrenwend *et al* (1983) have questioned the idea that psychological symptoms have the same implications whether they are found in persons receiving treatment or in untreated persons, while Solomon (1989) showed that veterans who did not seek help for PTSD had less severe symptoms and greater perceived self-efficacy than those who had sought help and received apparently successful treatment 12 months previously.

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Case Management

FRANK HOLLOWAY, ELIZABETH K. McLEAN and J. A. ROBERTSON

"This paper discusses the advantages and disadvantages of case management systems for the co-ordination of care of people with long-term mental illness living in the community. Many of the principles are equally applicable to other client groups with long-term needs, e.g. elderly people or people with learning difficulties. Some of the historical background to the emergence of case management concepts is discussed, culminating in the recent White Paper on Community Care. The underlying concept of case management is examined, together with a number of fundamental questions concerning who should act as case managers, what kinds of training they will require, problems of inter- and intra-agency co-operation, and the empirical evidence regarding its effectiveness. It is concluded that case management could be an important element in a comprehensive range of mental health services, but it is not a substitute for basic community provisions."

The summary quoted above is from an article by Shepherd (1990). The present authors were invited to comment on the study.

Frank Holloway

Case management is highly topical. Current British government policy identifies case management (CM) as a key co-ordinating mechanism across a range of community-care client groups (Her Majesty's Stationery Office, 1989), and a number of useful reviews are already available (Intagliata, 1982; Renshaw, 1988; Clifford & Craig, 1988; Kanter, 1989; Thornicroft, 1990). However, given the confusing and contradictory approaches adopted towards it in the literature (Bachrach, 1989), it is quite appropriate that Shepherd's review poses more questions than it answers.

The aims of CM systems have been succinctly defined as: "to enhance the continuity of care and its accessibility, accountability and efficiency" (Intagliata, 1982). Geoff Shepherd outlines the major components which are focused on the individual patient/client: (a) assessment of need; (b) development of a comprehensive service plan; (c) arrangement of service delivery; and (d) monitoring and assessment of services. These systems are intended to overcome the fragmentation of services, and to offer long-term, flexible support. In theory, the approach places emphasis on tailoring services to the needs of clients, rather than fitting clients into existing provision (Renshaw, 1988; Beardshaw & Towell, 1990).

Two contrasting models have been identified. Paraprofessional case managers may act as 'service brokers', responsible for but not necessarily providing the assessment and implementation of a package of care (Bachrach, 1989). Alternatively, in 'clinica case management', a highly skilled psychiatri professional is "directly concerned with all aspect of their patients' physical and social environment" The clinical case manager not only arranges acces to appropriate services, but also provides a range o interventions, including intermittent psychotherapy training in community living skills, psychoeducatio of family and patient, and support during crise (Kanter, 1989). Ideally, clinical case managers shoul anticipate impending crises and take appropriat action: success in dealing effectively with relapses an other difficulties can then give both client and carer a sense of confidence and control over events (Harri & Bergman, 1987).

Shepherd stresses the importance to any C system of the reliable and valid assessment of need but the complexities inherent in the concept o need are not always acknowledged (Baldwin, 1986). The model developed by Brewin *et al* (1987) focuse too exclusively on symptoms, behavioural problems, and skills deficits to be wholly satisfactory. The 'illness' language of their model is neither understood nor accepted by many policy-makers and practitioners, particularly those from a social-work tradition. Approaches that emphasise the intrapsychic needs of patients, and the potential value of a CM service which sets out to meet these needs (Harris & Bergman, 1987), may not be adequately operationalised. Stein & Test (1980) articulated a pragmatic-needs model which underlay the initial Training in Community Living project and which has gone on to influence numerous CM services (Olfson, 1990). They identified factors they felt to be important in maintaining people with long-term disabling mental illnesses in the community. These included adequate material resources, the skills to cope with daily life, motivation persevere in the fact of day-to-day problems, ppropriately supportive relationships, a supportive cal community, and an assertive service system. he model also explicitly acknowledges the importance f control of symptoms, and the role of in-patient sychiatric care. It has considerable credibility, and as evolved as the local service has developed (Stein t *al*, 1990).

Almost inevitably, CM requires multidisciplinary nd multi-agency working; however, for this to be t all effective, shared principles and practices have o develop. The new community services that are eplacing the psychiatric hospital frequently espouse he Social Role Valorisation 'philosophy' or one of s derivatives (Wolfensberger, 1972, 1983; O'Brien, 987), and where such principles are incorporated, hey have to be reconciled with more traditional, mpirically based, approaches to need.

Both empirical evidence and the weight of rofessional opinion favour the 'clinical' model f CM over the service brokerage model, which tends o be espoused by planners and policy-makers. The atter model has been shown to result in increasing se (and costs) of services, without demonstrable mprovements in the welfare of clients (Franklin *et l*, 1987). Skilled personnel who form a relationship with the client and facilitate other supportive relationships have been shown to have a positive effect on the outcome for frail elderly people, independent of the improved matching of resources to needs (Davies & Missiakoulis, 1988). Numerous studies of CM services have now been completed that derive from the community treatment approach developed by Stein & Test (1980), which in effect constituted a highly evolved form of clinical case management, and the outcomes have been generally favourable (Olfson, 1990). Assertive community treatment services can definitely decrease the use of in-patient treatment, particularly when focused on patients presenting for admission (Stein & Test, 1980; Hoult *et al*, 1983; Hoult & Reynolds, 1984; Mulder, 1985; Marks *et al*, 1988; Taube *et al*, 1990), compared with control conditions. When the focus is on out-patient populations who are felt to be at high risk of readmission, hospital days may also be reduced (Borland *et al*, 1989; Jerrell & Hu, 1989; Bush *et al*, 1990), although this has not been found in every centre (Bond *et al*, 1988). The effect of clinical case management on symptoms, social functioning, and overall costs is more variable (Olfson, 1990; Taube *et al*, 1990), although when it is measured, patient/client satisfaction does seem consistently to favour assertive CM.

Some tentative conclusions about the organisation of community support services for the mentally ill may tentatively be drawn (Holloway, 1991). Firstly, the service must be targeted towards a clearly defined client group whose needs are adequately understood and agreed by the participants in the service. This implies that the service goals and operational policy are clear and that the CM system works smoothly as a component of the overall local health and welfare system. Secondly, good-quality community psychiatric care requires teamwork (Test, 1979; Intagliata, 1982; Wooff & Goldberg, 1988); long-term continuity of care can only realistically be provided by a team. The existence of a team protects staff from the burden of sole responsibility, allows co-ordination of care from a group of relevant professionals, may improve the management of workloads, and may facilitate the establishment of common priorities. Thirdly, case managers must work effectively with colleagues from other services. It is unclear whether good professional relationships between staff across agencies will suffice, or whether budgetary control is required by the CM system (Kanter, 1989) and the role of the primary health care team in the supportive network has not been adequately explored (Kendrick, 1990). Fourthly, staff : client ratios must be realistic. Although caseloads of CM systems may vary from 4 to 50 clients (Intagliata, 1982; Kanter, 1989), intensive services adopting an assertive community treatment model have a typical ratio of 1:10 (Taube *et al*, 1990). Finally, and perhaps most fundamentally, the CM system itself must be well managed, with adequate attention being given to the selection, training, supervision, and professional and personal support of case managers.

Shepherd rightly emphasises that CM is no substitute for other community care provision, nor is it a magical solution to the fragmentation of the current health and welfare system. This is essentially a political rather than an organisational problem, which for its resolution requires existing agencies to give up some of their power (Rosenberger, 1990). British government community care policy places responsibility for the 'social' aspects of community care onto social services authorities (Her Majesty's Stationery Office, 1989). They are expected to set up case-management services which will have adherence to cash-limited local community care budgets as a primary task (Holloway, 1990). At the same time, health authorities, which retain responsibility for the 'health' components of community care, are to develop a 'care programme' approach to vulnerable patients. Conflicting priorities and ideologies, compounded by the studied absence of direction from the centre, make it unlikely that these initiatives will resolve the problem of the fragmentation of services.

Attention has been drawn again recently (Lehman, 1989) to the need for a multidisciplinary continuous treatment team, which strives to fulfil the core CM functions within a defined catchment area – a concept developed in Britain in the 1960s (e.g. Freeman, 1963). However, if its promise is to be fulfilled, the treatment team concept needs to be adapted to local circumstances. A great deal more research is required to identify the elements of service intervention that are beneficial, exploring the functioning of services that are mature rather than experimental and the applicability of the model across client populations (Taube *et al*, 1990). Local services should be encouraged both to innovate and to evaluate systems of care that are derived from the basic model. We should look forward with interest to a research report from Dr Shepherd's Case Management Project.

Elizabeth K. McLean

I found this a very thoughtful and clear paper, blessedly free of idealistic fervour, and strong in three areas: it offered a brief and useful bibliography; it showed a real appreciation of the clinical realities and dilemmas which arise in the 'hands-on' support of long-term mentally ill people living in community settings; and it did not shrink from mentioning some of the often unmentionable difficulties that arise, such as suspicion and rivalry between caring agencies.

Shepherd discusses dilemmas already very familiar to those working in the field, but the dilemmas are far from resolved. Is the case manager a broker or a personal therapist? If a broker, what are her links with another person taking the role of therapist, and where does responsibility for decisions lie? Is the case manager's primary responsibility to her client, or has she a responsibility for the management, which in the current NHS/DSS climate can only mean rationing, of resources? What are the principal aims of the case management function? Some argue cogently that the maximisation of welfare benefits is of greater value to the client than other more traditional 'therapeutic' aims. Maximising the quality of life is a real and legitimate aim, but those who wish to do so should say how they are going to measure it. There is often an assumption that the avoidance of repeated hospital admission is an important aim, but should it be so for severely ill people, suffering from disorders whose natural history, even on maintenance medication, is one of repeated relapse? I feel that this should not be accepted as an overall aim, but that in selected cases, prompt and early admission in relapse should be married to detailed support during early discharge. This highlights th importance of setting and monitoring aims c intervention for each individual, which need to b regularly reviewed and should prudently give rise t outcome scores, so that a quotable measure o effectiveness is collected on a routine basis, as weapon against future cuts in case managemen services.

The paper also highlights another hoary dilemma - is the case manager a clinician or a generic worke of relatively brief training? Clinicians usually hav good links with the hospital service, which are vita at times of readmission and discharge, as well a tending to ensure that the case management tea does pick up the most severely ill and disable people. But clinicians are expensive and their skill tend to lie in assessment and active treatment; the are not always skilled in the support role. Many o the tasks which fall to an active case manager, such as acting as advocate on benefit and housing issues, staffing social support groups, or driving (for lack of any other driver) the minibus on a group outing, can be construed as a waste of a clinician's expensive postgraduate training. On the other hand, if case managers are generic workers with little professional background, will they be capable of advocating their client's view when it conflicts with a professional opinion? How will they maintain working links with the hospital services? How can they acquire the clinical knowledge to recognise early relapse?

Case management as a theoretical idea is often defined and discussed in terms of the role of an individual, but Shepherd emphasises the importance of team work, team leadership, and team support in delivering a case management package. He describes how the "drift up market" away from the most disabled clients towards "less demanding, more tractable customers" can best be combated when individual case managers are part of a high-morale team, where monitoring support and supervision are available from "experienced and high-status practitioners in the field". Such a structure lends itself to regular multidisciplinary discussion of client's aims and progress, in a way which stimulates innovation and combats burn-out. With such a team, if upmarket drift is to be avoided, there needs to be a working definition of the downmarket patients (McLean & Leibowitz, 1989); without such a definition, monitoring of a supposed drift is impossible. In exercising their mutual support role, teams need to recognise the reality of exhaustion. A well-functioning team should allow a case manager to say "I can't do any more for Bloggs", and arrange for another person to do their stint with a static or unresponsive client. A warm and mutually supportive emotional climate within the team is vital for the success of such transactions, but it will not persist without nurturing.

Where case managers are able to work in the same area for an extended period, burn-out and continuity are opposite faces of the same coin. But in my experience, genuine continuity of care, allowing a case manager to stay with a client for more than two years, is difficult to achieve because of the legitimate claims of career advancement and family life on the location of individual case managers. For all but the most senior professionals, promotion prospects, study leave, maternity leave, and the career moves of spouses demand dislocations at intervals which are often as close as two years. Such changes of case manager are not emphasised in clinical histories, but they may be of shattering import to the client, when the relationship established is a close one. Services which act as training centres have the additional dilemma of the conflict between training experience and continuity: undergraduate students may be attached to a team for 6–13 weeks, postgraduate students for 6–9 months. These time scales are the blinking of an eye in the 50 or more years of a psychotic life. Are students to be observers only? If we think that they 'need' genuine clinical responsibility, how is this need to be weighed against the patient's need for undisrupted continuity?

The practice of case management needs evaluation, and studies have been completed which show (not surprisingly) that it can both succeed and fail. Shepherd rightly draws attention to the mismatch between the time scales commonly feasible in an evaluation study, which are of the order of six months to two years, and the acknowledged very slow progress of patients in traditional hospital rehabilitation settings, where changes become apparent only over intervals of four to five years. It is not clear how this dilemma is to be resolved in the current climate of funding for research proposals.

Case management in community care is still an infant in Britain. Shepherd's paper gives us a good framework to think of its strengths and its needs. The next step must be to foster a quantitative approach to monitoring, so that arguments about effectiveness have something to bite on.

J. A. Robertson

The de-institutionalising of psychiatric services, now in progress throughout much of the developed world, has run into widespread difficulties which have done great harm to the underlying ideals and obscured the successes. As Shepherd observes, we all need to find a way to "glue services back together again", and he critically examines case management as one means of doing so.

It is interesting to note that the concept originated in the USA where, at least in some states, the move from the old institutions has gone so disastrously wrong, many patients being polarised between destitution on the one hand and new inferior institutions on the other. In this respect, a parallel exists with medical audit, i.e. a transatlantic imported solution to deal with an imported problem; in the case of audit, the need was to uphold clinical standards in the medical market place, in that of case management it was for re-integration of a 'mixed economy of care' which need not have been fragmented in the first place. Case management cannot now be seen in isolation from the legislative changes in the health and social services of which it is to be an essential element. While Shepherd rightly points out that it is not a panacea, it seems that the government is pushing it through as though it were just that.

Under the 'old' NHS, one could point to at least some districts where comprehensive non-institutional services were being satisfactorily developed. The essentials were adequate NHS facilities, including some for rehabilitation and continuing care; adequate resources deployed by the local authority, including some residential places; good peripatetic staff for supporting people at home; and some means of co-ordinating the system, enabling professionals to work constructively together. There was no clear formula for such co-ordination, but commitment to co-operation seemed more important than formal structures, and the quality of medical leadership could make or break the system.

My use of the past tense emphasises the wholesale change which is already upon us, if Department of Health circulars are to be taken literally: by April 1991, health authorities were required to implement a case management approach for any in-patient whom it is planned to treat 'in the community', and shortly to extend this to any patient contacting the psychiatric service. The future has already arrived.

This future looks very different from the scene we are used to. 'Purchasers' from both NHS district authorities and local authority social services will struggle to obtain services for their clients from a motley range of providers – NHS trusts, directly managed units, charities, housing associations, and the private sector. The government, having smiled on entrepreneurs in the care-home business for a decade, now seems set to make it very difficult for patients to obtain residential places outside hospital. On the other side of the fence, there are remorseless financial pressures on NHS managers to redefine anything apart from acute psychiatric treatment as lying outside the responsibilities of the health service. The risk of patients falling through gaps will be greatly increased. The existence of a case manager or someone similar does indeed seem essential to guide the client through the maze but, as Shepherd rightly points out, case management can never be a substitute for services themselves. He emphasises the need for an adequate 'infrastructure': apart from specific services for the mentally ill, such an infrastructure must comprise other essential elements of the welfare state, such as welfare benefits and adequate housing, which it is becoming harder to take for granted.

Case management has much to recommend it in the co-ordination of services for the 'high-uptake', long-term patient who needs a wide range of dispersed services, with the risk of duplication, confusion, or omission. It would be developed as an extension of the less formal 'key worker' principle that is already widely in use. However, its wholesale implementation as a radical new initiative raises numerous questions, some of which Shepherd considers in his article, but which Department of Health bureaucrats skate over. For instance, is it seriously intended to apply to all new patients contacting the service, including out-patients attending only for consultation, medication, or psychotherapy? This is what one circular implies, if taken literally. Can only case managers decide when their services are required, or can this be left to clinicians? Will patients want such intrusion and the multiplication of helpers? What are the implications for confidentiality? What, above all, are the manpower implications?

Shepherd's account, which is sceptical in the best sense, gives a very fair and balanced view of the issues, highlighting areas of potential conflict and difficulty. The distinction he makes between a 'managerial' and 'clinical' concept seems crucial, and managers and mental health professionals are likely to take sides accordingly. In practice, the decisive criterion is likely to be who pays the piper, and with lead responsibility and budgets going to local authorities, social services managers' conceptions of case management are likely to prevail. If they do, another range of questions needs to be answered. Will case managers be drawn from the ranks of generic field workers? If so, how will they be trained in the mental health skills they are widely perceived to lack? Many services are already troubled by lack of congruence between psychiatrists' conceptions of mental illness and social workers' of mental health; they are not simple opposites, but belong to different frames of reference. If case managers are indeed "to be able to influence both the medical and social aspects of people's problems", they must at lea gain a thorough acquaintance with psychiatr language and concepts, and to respect, if not wholl to accept, the much derided 'medical model'.

The notorious split between health authorities an local social services was the most problematic featu of the old mental health scene. By artificiall separating 'treatment' from 'care' and trying t locate the latter completely outside the health servic the new arrangements are likely to exacerbate th problem. Shepherd shows his awareness of this whe he comments that the most important area for cas managers, in terms of inter-agency co-operation concerns the transition of patients in and out c hospital.

This process of transition between two spheres o responsibility is certainly important, but the processe of admission and discharge should not be allowe to assume exaggerated importance. The point o discharge to the community may be a momentou event for an 'old long-stay' patient, but those in dispersed community-orientated service may nee short admissions to a local unit from time to time which need cause no more than minor disruption t the overall care programme and should be no mor traumatic than, say, the transition between a hoste and sheltered housing. In achieving such a seamles service, the task confronting the mental healt providers of the next decade will still be that o creating working teams or networks of professional with different backgrounds, employers, and lin managers. *Plus ça change* . . . ? If such network are not in place, is there any chance of case manager succeeding? If they are working well, are cas managers necessary?

A psychiatrist reading Shepherd's account or the official directives might be forgiven for feeling somewhat marginalised, if only because he has been accustomed to a more central role in what is, after all, his area of expertise . . . the management of mental illness. A visit to the psychiatrist by the client accompanied by the case manager "to ensure they are able to obtain whatever services they need" is made to sound little different from a visit to the social security office or housing department. Too many consultants have neglected their responsibilities to the long-term mentally ill, behaved arrogantly to other professionals, or allowed their clinical interests to drift 'up market'. On the other hand, the most significant advances in the care of this group have originated within the hospital-based psychiatric services. Such 'outreach' services have a considerably better track record than those provided by local social services. The service of Stein & Test in Madison, often quoted as a paradigm of the case management approach, started in this way and psychiatric involvement has been integral to it.

Case management introduces a new kind of professional responsibility, which will not replace but co-exist with the present responsibilities of doctors, social workers, and other professionals. t is at present unclear what legal authority will underpin this responsibility or how much *de facto* authority case managers will acquire through raining, performance, or individual qualities. It is uncertain how they will be perceived by patients, already bewildered by a proliferation of helpers. Since the Mental Health Act leaves responsibility with doctors in the case of detained patients, the role of case management must be facilitating rather than compulsive. In the flight from the total institution with its one roof and one authority, we may end up with such diffusion of authority that nothing effective gets done, case management notwithstanding.

I would take issue with the author's comments about the 'technical' problems of assessing the need for care, and its alleged conceptual and methodological complexity. While there may be problems about the development of reliable and valid instruments for research, the requirements for the actual delivery of care are often quite elementary. The difficult issues are those of professional politics and ethics – particularly achieving the proper balance between the risk of neglect in the name of liberty and the delivery of adequate care with over-controlling paternalism. Such dilemmas are unlikely to be solved by the methods of empirical science.

It would be unfortunate if case management were to be universally and uncritically imposed without the benefit of information from pilot schemes, a number of which are already in operation. The recently announced delay in wholesale implementation of the parts of the Health and Community Care Act relating to care in the community should give an opportunity for full evaluation of these schemes and for lessons to be learned.

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Point of View

Psychotherapy 2000

Some Predictions for the Coming Decade

JEREMY HOLMES

The purpose of this paper is *prediction*. It is bound to be proved wrong. Like long range weather forecasters and economists, psychotherapists are in an "impossible profession" (Freud, 1937), dealing with non-linear and therefore inherently unstable systems, unable to make accurate predictions about the future. But psychotherapists are familiar with uncertainty, and indeed perhaps actively cultivate it in order to work more creatively. Also, the development of chaos theory (Gleick, 1988) has now made vagueness a respectable topic for scientific inquiry.

Psychotherapists should consider why the idea of the year 2000 exerts such a fascination. The notion of 2000 years since the birth of Christ seems like a solid, natural phenomenon, but is in reality an artefact. The Christian calendar was devised in the 6th century by the monk Dionysus Exiguus, for whom the date of the birth of Christ was guesswork (Williams, 1985). For Muslims we are entering the 14th century, a far less exciting figure.

Freud was fascinated by numerology and, being obsessional, was prey to irrational fears about numbers. He was convinced he would die at the age of 62, and became terrified when the last two digits of his telephone number were 62 (Pedder, 1990). Because they are arbitrary and abstract signs, numbers attract projections of inner mood states.

The year 2000 is too near for utopian or dystopian fantasies, and yet by looking into the future we are forced to consider that nothing is permanent, that all we hold dear can crumble away. Like Yeats, we may well ask

> "what rough beast, its hour come round at last
> Slouches towards Bethlehem to be born?"

Millenial fantasies are prevalent: in the brief moment between the ending of the Cold War and the onset of the Gulf crisis, the American historian Francis Fukuyama (1991) in a premature orgy of capitalist triumphalism announced the "end of history". The convergence of spiritual and ecological concerns has produced a New Age movement that, however much one may approve of its aspirations, has to be compared with the Plymouth Brethren who stood upon hilltops towards the end of the 19th century, confident that the end of the world was at hand (Gosse, 1989).

From a psychotherapeutic point of view, the advent of the millennium evokes primitive fears of dissolution and destruction, and compensatory fantasies of power or bliss. A pre-industrial society could balance these fears with images of continuity: the succession of saint's days, the cycle of the seasons, and the orderly sequence of birth, maturation, decay, and death followed by rebirth provided by the farming year. Continuity was provided not just by the land but by the family, extended both in time and space. Stripped of their religious and agrarian significance, living in a world of almost unimaginable change, no longer constrained by the dead hand of the past, we are free to invest our feast days and millennia with whatever significance we choose: we celebrate the 150th anniversary of the Royal College of Psychiatrists, the half century since Freud's death, and so on. The professional family replaces the village, community, or even the family itself, as the vehicle of celebration and continuity.

This is the context in which I consider below the future of that rather ambiguous branch of the psychiatric family, the psychotherapies, beginning with the organisation of psychotherapy, and then the context and themes of psychotherapeutic work.

The future of psychotherapy

A distinction must be made between the state of psychotherapy in general and that of psychotherapy within psychiatry. For psychotherapy itself, the 1990s are likely to be a period of both hope and turmoil. Three current and inter-related themes are likely to dominate the next decade: expansion, professionalism, and pluralism.

The 1980s have seen a great expansion in psychotherapy and counselling (Pedder, 1990). Training schemes have proliferated, new forms of psychotherapy have emerged – ranging from cognitive-behavioural therapy to the wilder fringes, a subculture

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of complementary therapies varying enormously in depth and respectability. The result has been that psychotherapy is available to a far wider spectrum of the population than ever before, but often in a form which would alarm some of the psychoanalytic pioneers, although not necessarily Freud, who in 1919 predicted that if the misery of the masses was to be addressed, the "pure gold of psychoanalysis" would have to be alloyed with the "copper of suggestion" (Freud, 1919).

A consequence of this proliferation will almost certainly be the further professionalisation of psychotherapy. An important step in this direction will be, through the UK Standing Committee for Psychotherapy (a development of the 'Rugby Conferences'), the registration of psychotherapists, and more importantly perhaps, the accreditation of psychotherapy training schemes. Pedder (1989) has compared this process with the registration of medical practitioners in the mid-19th century which unified a diversity of doctors, from the Harley Street grandees to the unqualified provincial physicians and barber-surgeons who served the poor. The call for registration of psychotherapists goes back at least to the Foster report (Foster, 1971), but the pace of change has quickened recently, and by the year 2000 it is very likely that an independent profession of psychotherapists will have been established, comprising the main schools and tendencies within psychotherapy, including analytic psychotherapy, cognitive behavioural psychotherapy, family and marital therapy, and humanistic approaches.

Whether such developments will lead to greater unity and a raising of standards, or to dilution and "discreditation by association" of hard-won rigour represented by the tougher and more established training schemes (such as the four-year senior registrar training in psychotherapy for psychiatrists) is a matter for debate. The psychotherapies continue to struggle to define themselves, and to find ways to delineate their common features and those in which they differ. Freud was in no doubt about the need for a pluralistic approach. In his paper "Lines of advance in psychoanalytic therapy" (Freud, 1919), he called for widened availability of psychoanalysis. He suggested that this would require at least three major modifications in classic analytic technique. Firstly, the therapist would have to become more of a pedagogue, instructing patients how to lead their lives more effectively. Secondly, therapies would have to become time-limited. Thirdly, therapists would have to be prepared to use 'suggestion', that is, the force of their personality, combined if necessary with hypnotic techniques such as deep relaxation in order to part the patient from the neurosis.

Freud's call for the use of what we would now see as educational and behavioural models of therapy has clearly been realised in the widespread acceptance within psychiatry of brief psychotherapies and cognitive behavioural approaches, including anxiety management. A continuing theme for the '90s will be that of eclecticism. Patients need a variety of therapeutic approaches if their differing problems, personalities and situations are to be accommodated, but an assortment of half-assimilated techniques can produce poor therapy and may lead to a backlash of purism. It remains to be seen how much psychoanalysis will be prepared to compromise its standards (especially the 'gold standard' of five-times-a-week analysis) in order to widen its applicability and accessibility.

Implications for psychotherapeutic psychiatry

The reverberations of this pluralistic expansion of psychotherapy will have important implications for psychiatry. The neo-Kraepelians may argue that psychotherapy is a sufficiently trivial pursuit to be left to the psychotherapists and psychologists, and confine themselves to what they see as the real task of scientific psychiatry, the understanding and treatment of the psychoses. This will lead to fragmentation, with psychiatrists running what is essentially a psychosis service, while the psychotherapeutic needs of the population are met by a diverse group of psychologists, private psychotherapists, counsellors based in general practice, and so on. The alternative is an integrated model of a Psychotherapy and Psychological Treatment Service in the National Health Service (NHS), in which psychotherapeutically minded psychiatrists, psychologists and non-medical registered psychotherapists work collaboratively, each contributing their own area of interest and expertise, thus providing a 'matrix' of different treatments which collectively can cater for the varying needs and expectations of patients (Holmes & Lindley, 1989).

Interprofessional rivalries are likely to intensify as resources diminish. Medical hegemony will continue to be challenged, especially by psychologists and nurses, who will be able legitimately to claim more psychotherapeutic expertise than many of their psychiatric colleagues. The temptation for psychiatry to concede the territory of psychotherapy and to retreat into 'science' rejecting all that cannot be quantified, will be great. But even such a narrowly defined psychiatry will continue to need psychotherapeutic skills in the management of schizophrenics and their families; patients with depressive illnesses in whom antidepressants are ineffective, unwelcome, or insufficient; patients with eating disorders, in whom medical complications are an ever-present possibility; suicidal patients; those with somatisation disorders; and patients with borderline personality disorders or unstable mood states, who so often gravitate towards psychiatric services, and who, on the whole, are so ill served by them (Grant *et al*, 1991). Furthermore, community psychiatrists will need psychotherapeutic skills both to help in the understanding of the meaning and content of their patients' illnesses, and to provide symbolic containment and integration in the face of increasing administrative fragmentation (Holmes, 1990).

These shifting professional boundaries are but one manifestation of the economic and political pressures that will shape the pattern of our work by the year 2000. It seems likely, whatever the political future, that the introduction of market forces into the NHS, in one form or another, is here to stay. Although we may deplore this move politically (psychotherapists tending to be on the liberal wing of the psychiatric party), it may, paradoxically, have the effect of raising the status and morale of psychotherapy, since it is what many patients want and are prepared to travel distances to get. Hitherto, this tendency of psychotherapy departments to serve a wider population than their immediate district has been frowned upon as an example of an inessential 'luxury'. In future they may be seen by managers as useful money makers, while general psychiatric services are increasingly squeezed. Nevertheless, psychotherapy departments remain soft targets, vulnerable to cuts if resources diminish.

Meanwhile, there will be increasing managerial discouragement of 'analysis interminable', with auditors, work-load negotiators and purchasing managers being prepared to fund only the briefer 'validated' forms of psychotherapy. For some this will undoubtedly be a benefit, widening the availability of therapy and concentrating the minds of the therapists. The danger is that it will encourage a form of psychotherapeutic consumerism, whose outlines are already visible, in which 'customers' sample varieties of different therapies, each with its transitory immediate appeal and impact on surface problems. This may act as a defence for the patient against facing their inner emptiness and the need for an enduring and intimate relationship with a therapist in which trauma, negativity and destructiveness can be accepted and transcended.

The psychoanalytic paradigm of a prolonged, intense, neutral therapeutic relationship, with its potential for long-term benefit but low short-term cost–benefit pay-off, contrasts with the need for validated and realistic forms of psychotherapy for the NHS. The tension between them is unlikely to disappear over the next decade. My hope is that the creative conflict between the two extremes will lead to concessions on both sides. Psychoanalysis will become more flexible, while brief or cognitive therapists will acknowledge the need in many patients for more prolonged and open-ended therapeutic encounters than they currently endorse.

Themes for the future

No science operates in a social or cultural vacuum, least of all a part-scientific, part-pedagogic, part-artistic discipline such as psychotherapy. Numerous examples testify to the intimate relationship between technical and cultural change in society and developments in the field of psychotherapy. Freud's lifework must be seen in the context of the assimilation of the jewish intelligentsia in the 19th century. There is an obvious link between his concept of the death instinct and later elaborations of it by Melanie Klein and others, and the terrible impact of World War I. The spread of psychoanalysis to the USA and Britain in the '30s (and its conspicuous absence from the Soviet Union) is a direct result of the rise of Naziism and Stalinism. The development of group therapy in Britain derives mainly from the impact of World War II on a group of psychoanalytically minded military psychiatrists, including Bion, Main, Rickman, Trist and others (Pines, 1991). The ideas of cybernetics and study of communication systems, developed as part of the military effort in the war, lay the foundations for Bateson's work (Bateson, 1972) which led to the development of family therapy in the '60s. The current vogue for cognitive therapy can be seen as a response to the first oil crisis of the '70s, and the consequent need for briefer and cheaper forms of therapy.

The contours of the millennium

Five themes are likely to influence the climate of psychotherapy over the next ten years: science, religion, inequality, gender, and trauma. In particular, trauma and its sequelae provide a paradigm for psychotherapeutic work in the coming decade.

The impact of contemporary science and technology

Psychotherapy, like psychiatry itself, is both a science and an art. Scientific developments have undoubtedly had their impact on psychotherapy. Sulloway (1979) described Freud as the "biologist of the mind", and showed how Darwinian ideas were an indispensable precursor of Freudian notions of the evolution of the psyche, and the relationship between our adult conscious minds and the 'primitive' instinctual forces from which it has emerged in the course of development. Communications theory and cybernetics provided a language for the development of family therapy. Ryle's cognitive analytic therapy (Ryle, 1990) – which is likely to become increasingly popular among NHS psychotherapists over the next ten years – is couched in the language of information technology: patients maintain dysfunctional patterns by the use of target problem procedures (TPPs), and the task of therapy is seen as that of breaking into these self-defeating negative feedback loops.

Although it is now firmly established that psychotherapy is effective (Holmes & Lindley, 1989), the question of how change comes about remains a central issue for psychotherapy research. Audio and video recording enable the therapeutic process to be studied accurately, and this will continue to be a growth point for psychotherapy research in the coming decade. Sophisticated computer-based methods of analysing the myriad of interactions that take place in psychotherapy sessions are becoming available (Thoma & Kachele, 1986), and mathematical models that are adequate to undertake this task are being developed (Langs, 1989). Chaos theory (Gleick, 1988), which studies the laws which underlie the behaviour of complex systems such as the weather, stock markets, or paroxysmal cardiac arrythmias, looks like a promising paradigm for psychotherapy researchers to study. For example, the 'butterfly effect' indicates how small differences can have big impacts on outcomes of complex processes; psychotherapists are familiar with the way in which early, apparently trivial events in a session may determine the overall shape of the therapeutic encounter. Chaos theory, through its notion of 'fractal geometry', paints a holographic picture of complex systems, showing how all heaven can indeed be found in a grain of sand, how the close texture of a coastline can be related to its overall shape in an atlas. This is relevant to the psychotherapeutic observation that no one part of a therapeutic encounter is privileged, and that each session in a sense 'contains' the whole of the patient's pathology. The notion of 'strange attractors' may help to understand the nodal points that develop in psychotherapy: the recurrent themes and mood states to which the patient regularly returns, the understanding and overcoming of which often prove to be turning points in therapy.

The spiritual quest and the search for meaning

At the opposite pole to the scientific aspect of psychotherapy is the hermeneutic project of decoding meanings, the need to deepen understanding, and so increase the significance and richness of lived experience. Many authors have seen psychoanalysis and psychotherapy as providing a response to spiritual needs, especially among the intelligentsia and middle classes, in an increasingly secular world. An upsurge of interest in psychotherapy is likely in Eastern Europe, filling the vacuum left by the collapse of Marxist–Leninist ideology. Psychotherapy provides an account of *personal* meanings, and a method by which they can be explored and healed that complements the religious impulse. There will be an increasing dialogue between psychotherapy and religion over the next ten years. The impact of Eastern religion may be particularly significant: Zen Buddhism, for example, can itself be seen as a secularised religion, with its absence of theism, stress on paradox and spontaneity, and use of breathing techniques, which are now a standard part of psychological methods of anxiety control (West, 1990).

How this spiritual dimension to psychotherapy will fit in with the new market economy of the Health Service is uncertain, but it will remain one of the most important tasks of psychotherapy to be a bastion of human values, of 'being with' patients as well as 'doing to' them (Wolff, 1971) in an increasingly technological and commercial medical world.

Psychotherapy and inequality

Despite the increasingly widened availability of psychotherapy within the NHS, a stereotype persists: (Holmes & Lindley, 1989): the typical patient attending a psychotherapy department is between 20 and 40, white, of above average educational achievement, with middle-class aspirations or connections. In themselves, these demographic features are unexceptionable. Perhaps there is more motivation and opportunity for change in younger patients, and since most psychotherapies depend on putting feelings into words they are likely to appeal more to the educated and aspirant. There has been a gradual, but still too hesitant, recognition by psychotherapists that they are not reaching disadvantaged groups. The next decade will see more attempts to cater for those who are elderly, members of ethnic minorities, unemployed, poor, or living in isolated communities such as large housing estates or in rural areas. Urgent efforts must be made to train those who are working in these communities in psychotherapeutic skills, and also to learn from such workers about how psychotherapeutic techniques need to be modified and adapted to a less rarified nvironment. An eclectic, broad-based, non-dogmatic pproach is indispensable, while holding to the essential psychotherapeutic requirements of a secure holding environment and a recognition of the role of the unconscious (Lorion & Felner, 1986).

The gender question

The need for a new psychology of men has been brought home to me recently by two sets of clinical experiences. The first has been what seems almost an epidemic of young psychotic men. A common theme seems to be the pressure to achieve emotional sexual maturity and their failure to do so, with breakdowns in which fears of inadequacy, homosexual panic, a regressive demandingness, and at times violence towards their mothers are prominent. These young men have often been brought up with weak or absent fathers, and so this constellation cannot be understood in classic Oedipal terms, but in terms of an infantile fear of the overwhelming power of the mother, reactivated in young adulthood when faced with the possibility of a real relationship with a woman, and the lack of identification with a potent father. These emotional problems are often exacerbated by difficulties in finding work in an economy in which unemployment, especially for the unskilled, is endemic.

The second has come from working psychotherapeutically with a number of men married to feminist women, in whom there is a conflict between their need to suppress feelings in order to function at work, and wives who expect and demand intimacy and affective liveliness at home. Soldiers, offshore oil workers, long-distance drivers, and salesmen, who travel and who habitually deal with the pain of separation and the difficulties of re-entry into families by repressing feelings of grief and loneliness, are particularly vulnerable. They are expected to be emotionally available by wives who are themselves often cut-off from traditional female intimacy and whose hunger for closeness focuses more and more on their spouses, as the strength of traditional family and social networks diminishes. The result of these pressures is often domestic violence, and a split-off sexuality in the form of affairs, sexual perversions or sexual abuse.

The '70s and '80s were the decades of feminist psychology. By the year 2000 the question of male psychology will have come into prominence. Psychotherapists will play their part in helping to find an answer to the reverse of professor Higgins' well known complaint: "why can't a woman be more like a man?"

The impact of real trauma

Psychotherapists can be divided into those who emphasise the impact of environmental failure in producing emotional difficulty, and those who emphasise the contribution of the inner world to neurosis and psychological breakdown. As the recent Masson controversy has shown (Masson, 1985), Freud belonged at different times to both camps, having at first viewed hysteria as a result of sexual seduction in childhood, but later coming to think that it was *fantasies* of infantile seduction that were important and universal, rather than their reality.

This debate has continued, with authors like Bowlby, Winnicott and Kohut emphasising environmental failure as a determinant of neurosis, seeing the therapist's role as providing corrective, non-traumatic counterbalancing experience, while in a curious alliance Kleinian and cognitive theorists consider the inner world with its distorted perceptions as the key issue, and view the therapist's role as one of correcting misperceptions through interpretation or instruction.

The '80s in Britain have seen an increasing awareness of the impact and sequelae of individual and group trauma. The psychological needs of the survivors of disasters is beginning to be recognised (Garland, 1991); so too is the prevalence of sexual abuse of children and its long-term consequences for mental health (Grant, 1991). The recognition of post-traumatic stress disorder (Horowitz, 1986) as a psychiatric entity, and its increasing invocation as a basis for compensation claims, is one manifestation of this awareness. Psychosis can itself be considered a trauma, needing psychotherapeutic skills, alongside pharmacological skills, to help its victims and their families to cope with its impact (Leff & Vaughan, 1983).

The '90s will see a continuation of this emphasis on the impact of real trauma, but also increasing attention to its effects on the inner world, thus bringing together the two aspects of psychological thought. When the external world fails so decisively as it does when a vessel sinks, drowning its passengers, or a parent abuses a child, the survivor will initially (and sometimes permanently) be unable to trust the environment. External failure will be mirrored in an inner world which 'contains' the memories of the trauma but also in which internal attachment figures are felt to be unavailable or irremediably unreliable. Excessive use is made in this situation of 'projective identification' (Jureidini, 1990) as a defence. Feelings of abandonment and hatred engendered by the trauma, so overwhelming that they cannot be contained, are split off and projected into the environment, which is then experienced as hostile and unsafe. A fragmented individual thus faces a fragmented and persecutory world. The traumatised individual sees the world as traumatising and maintains a partial sanity by doing so. Clinical examples of this process are to be found in borderline patients who show unstable mood states, self-loathing, tendency to split, to seek help and then be unable to use it, to idealise and to feel persecuted, and whose childhood is so often characterised by the traumata of confusion, abandonment, and sexual abuse.

In working with traumatised and borderline patients, psychotherapists are beginning to recognise some of the steps needed if some hope for the future is to be found. The first – and often it is not possible to go much further than this – is the full recognition of the extent of the damage, its disclosure and articulation. Next comes the need to deal with the repressed affect associated with the trauma: the rage, fear, and guilt. Then – and this is the most difficult part – there is understanding of the long-reaching effects of the trauma, of how the mental mechanisms used to deal with it can perpetuate the trauma and continue to influence and distort current relationships, including those with the therapist or therapeutic institution. Difficulty arises because therapists cannot distance themselves from the process, but will inevitably be caught up in it themselves, and be experienced by the patient as unreliable or even traumatising. This is equally true at an institutional level of hospitals and other psychiatric units that try to work with these patients. Finally, there is the possibility of reparation, of making good the damage done both to and by the traumatised individual, the overcoming of guilt and the finding, if not of forgiveness, then at least of acceptance. There is no short cut to reparation and attempts to find one may merely lead to further denial and disillusionment.

In working with traumatised patients a balance has to be struck between firmness and concern, between limit setting and loving kindness, aiming to produce a safe container which can survive the disappointments and attacks it will inevitably provoke, and within which growth can take place. Translating these concepts into practical psychiatric care is one of the central tasks of NHS psychotherapy for the year 2000.

Conclusion

Concern for the environment is likely to be one of the major political and social themes for the coming decade. Here the psychological processes I have described can be observed at a social and political level. The Earth itself is traumatised. Pollution is based on splitting: unwanted products are expelled into the environment – the atmosphere, seas, rivers, Third World countries – at first disowned, later experienced as persecutory. In the 'Gaia hypothesis' (Lovelock, 1982) the Earth is anthropomorphised (or gynomorphised) as a living mother, spoiled, dying even, through the hostile projections of her omnipotent and greedy inhabitants. The Green Movement can be seen as an attempt at therapy and reparation: helping the community to face up to the cycle of trauma in which it is trapped.

There are some encouraging signs that, despite an increasing capacity for destruction and disaster, the world community may be changing, in Bion's (1962) terms, from a fight–flight group to a pairing group. The shape of the year 2000 – including what if the 'butterfly effect' is to be believed is the not entirely insignificant question of the further marginalisation or acceptance of psychotherapy within psychiatry – depends on whether it can now become a work group.

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British Journal of Psychiatry (1991), **159**, 156–166

Correspondence

Editor: Ian Pullen

Contents: Prescribing practices/Outcome for elderly depressives/Lithium education programme/Computerised tomography in schizophrenia/'The disease concept of alcoholism'/Double blind acceptance/Ordering thoughts in thought disorder/Anabolic steroid use outside competition/Violence and sudden death/Treatment-resistant depression/Psychiatry and post-traumatic stress disorder/Access to Health Records Act, 1990/Chloroquine-induced mania/Catatonia and NMS/Amitryptyline in clozapine-induced sialorrhoea.

Prescribing practices

Sir: The following letter was written by my father John Dunne, Emeritus Professor of Psychiatry at University College, Dublin, shortly before his death at the age of 92, on 1 January 1991. Having qualified in 1922, he lived through many changes in psychiatry, such as the discovery of electroconvulsive therapy (ECT), antidepressants, and neuroleptics. However, in recent years he became concerned about certain prescribing practices; his views are stated below.

Sir: There is reason for concern about the prescribing of neuroleptics by some colleagues, who, firstly, are using very large doses, e.g. chlorpromazine 800 mg to 1000 mg, haloperidol 70 mg and over, etc., daily, and who, secondly, prescribe a number of neuroleptics, three, occasionally four, simultaneously, often in similar large dosage. This practice is most likely to occur if the patient's behaviour is difficult to manage, particularly in the setting of an acute in-patient unit.

Such practice is likely to get neuroleptics a bad name with the public at large, resulting as it does, in greater incidence of side-effects, which could lead to litigation by injured parties seeking compensation, and this, in turn, would make many individual psychiatrists reluctant to use them in adequate dosage. The discrediting of neuroleptics would also increase patients' resistance to taking them.

This would be a major disaster for psychiatry; I write as one still in active practice, who has been practising for over 65 years, and who recalls the treatment of psychotic patients before the introduction of neuroleptics.

It is my opinion that the prescribing patterns described are, firstly, due to pressure to get patients out of hospital in short periods of time, or to keep patients out of hospital, and secondly, due to failure to ensure that adequate numbers of trained nursing staff are available at all times, sufficient numbers being essential to nurse confidence. When nursing staff are confident that they can cope effectively with all behaviour, and that they themselves, and their patients, are safe, they can then promote the other aspects of a therapeutic environment; respect for, understanding of, and sensitivity towards each patient, accompanied by constructive communication and activity, thereby promoting recovery, and making untoward incidents unlikely This has been my experience, and it is supported by extensive literature, dating from at least the 18th century to the present

Pharmacology now makes a major contribution to psychiatric treatment, how major perhaps only individuals such as I fully appreciate, but this does not obviate the need for human therapeutic process. Attempts to replace human means of treatment by excessive reliance on pharmacology, for whatever reason, is not just a poorer form of treatment, it is likely to lead to the discrediting of very valuable drug therapies, with serious consequences for many who would benefit from them.

John Dunne

I believe that the views expressed in his letter are of great importance to current psychiatric practice.

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Outcome for elderly depressives

Sir: The paper by Burvill *et al* (*Journal*, January 1991, **158**, 64–71) is a further helpful addition to the debate over what outcome can be expected nowadays for elderly depressives referred for specialist psychiatric treatment. Regarding the work which I carried out with David Jolley in 1986, there is one misquotation. It concerns the sex ratio of our sample, to which reference is made twice; the correct ratio is male:female = 1:4 (and not the other way round, as stated by Drs Burvill *et al*).

Having corrected this, and taking into account arguments from our original paper, the suggestion by Drs Burvill *et al* that our patients were not likely to be representative of those usually presenting to psychogeriatric services seems an unlikely explanation for differences in outcome in the three studies quoted. There were some modest differences related to illness, such as severity, but probably more important are the roles of social adversity and health invalidity as maintaining factors for depression, with an ensuing poorer prognosis, and here the Australians seem to have a clear advantage. This is reflected in their earlier observation (Emmerson *et al*, 1989) that severe, enduring life difficulties were rarely encountered in this affluent part of Western Australia. One could infer that such considerations, alongside the striking absence of cases with symptoms which had endured for over a year before presentation, are likely to lead to an improved prognosis. Certainly their prognosis is more positive than that of Murphy's cohort (1983).

Yet even these factors must be set alongside the critical role of treatment adequacy and aftercare, which the Australian group aptly highlight, and which was the major weakness of Murphy's study (although she was not responsible for management of the patients she studied). An agreed treatment protocol should surely be as important a part of future research into the outcome of depression as is the use of agreed operational diagnostic criteria for selecting which patients are for study. This will be especially relevant if the comments of Drs Burvill *et al* are registered concerning the low statistical power of all the studies to date: the most expedient way forward might be multi-centre studies of outcome.

Drs Burvill *et al* devised two methods of (dichotomised) outcome, and used the second, more stringent, one to assess the relationship of predictor variables to outcome. Yet examination of these two methods of expressing outcome suggests that they are as much to do with the uncertainty which exists in trying to define what we mean by an outcome as they are to facilitate comparison with other studies.

One method expresses outcome cross-sectionally (ignoring intervening relapses, etc.) and the other incorporates some longitudinal component (for example, clinical course of illness). This too is an important aspect of future research. Tools, such as the longitudinal interval follow-up evaluation (LIFE; Keller *et al*, 1987) are available, which allow systematic recording of mental state, psychosocial functioning, life events, medication and physical health, or any other factor thought likely to be relevant to prognosis, over a defined follow-up. When combined with statistical methods, such as survival analysis, such instruments form the basis for prognostic statements which can take into account a wide range of factors and can then be applied to the individual patient.

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AUTHOR'S REPLY: In reply to the letter of Dr R. C. Baldwin, I acknowledge and apologise for the misquote of the sex ratio, when referring to the paper of Baldwin & Jolley (1986). Even with this correction, our suggestion that the apparent unrepresentativeness of their 100 patients, compared with those presenting to most psychogeriatric services, as one possible explanation for the differences in the outcome of the three quoted studies, cannot be ignored. The causes of the differences are likely to be multifactorial, including the lower proportion of life difficulties encountered in the Western Australian study, as highlighted by Baldwin. We fully agree with his reservations about the methods of assessment of outcome. His comments coincide with our own views, which have been documented in detail elsewhere (Burvill *et al*, 1991).

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Lithium education programme

SIR: We read with great interest the article by Peet & Harvey "Lithium maintenance: standard education programme for patients" (*Journal*, February 1991, **158**, 197–200), which included several important issues about patients' compliance and knowledge about medication.

However, we would like to raise some points that we feel weaken their results. The first point concerns their sample. Looking at the characteristics of the sample quoted, it is obvious that the patients tested had a longstanding illness, and that lithium had substantially reduced their relapses. This, by itself, is a sign that they were good compliance subjects, and brings into question the generalisability of the findings to poorly compliant patients: in particular that lithium leads to better compliance and therefore fewer relapses.

Secondly, as regards the method, it seems that the authors did not control for input of time. The education group had an educational-video presentation while the control group had nothing. This weakens the results of the study further, as it could be argued that any video presentation on a subject of mental health could have an effect on the patients' attitudes in itself.

We would like to draw attention to the fact that, while using the lithium knowledge test (LKT) repeatedly during this study, no account seems to have been taken of practice effect. I would have been interested to have seen the questionnaires themselves as well as their reliability and validation data.

Finally, we felt it would be of great use to see if the long-term effects of the study improved compliance and safety, and reduced relapse. This would require a longer follow-up than the 24 weeks of this study.

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AUTHORS' REPLY: We thank Drs Douzenis & Brener for their interest in our work, concerning which they raise a number of points of method and interpretation.

The primary finding of our study was that the lithium information package led to a substantial improvement in patient knowledge about their treatment, which was sustained over 24 week follow-up. It is difficult to understand what Drs Douzenis & Brener mean by their statement that our study took no account of practice effects with the lithium knowledge test (LKT), when a control group was used to take such effects into account.

With regard to the effect of the educational programme on attitudes towards lithium, we state quite clearly in our article that improved attitude was not mainly due to the information programme, but that other factors in the study probably contributed. The point we make is simply that attitude to lithium was not harmed by a research programme in which information was presented about its adverse effects and, in fact, there was a modest improvement in attitude.

The patients attending our lithium clinic we all at different stages of treatment, not always prolonged duration. In our experience, the mix patients is typical of that found in lithium clini elsewhere in the country. It is, therefore, likely th our findings are generalisable to other lithium clin populations. We plan, with the help of sponsorshi to make the full educational programme wide available so that others can see for themselves.

The patients were not selected by us as 'goo compliance' subjects, and we have examined sel selection in the two years up to the study. Eightee patients left the clinic in that time. They were c comparable age and sex, and the mean durations c their illnesses and remissions were similar to thos for patients still attending. Their reasons for leavin appear to relate to social mobility, physical illnes or old age. Those remaining, on entering the education programme, showed attitudes on the lithium attitudes questionnaire (LAQ) suggesting doubtfu compliance. As many as 45% expressed oppositio to continuing with their lithium treatment.

Finally, the question of whether compliance woul be improved, and relapse rate reduced, over the lon term, as a result of proper education, remains to b answered. Our study was not designed to address thi issue. Unfortunately, it would not be possible to perform such a study using a parallel control group because of the ethical problems of purposely leavin a large group of patients relatively uninformed abou their treatment. In our own case, long-term follow-up of patients has been handicapped by the dispersa of patients from the Lithium Clinic, due to the introduction of sector-related services in Sheffield.

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Computerised tomography in schizophrenia

SIR: Thank you for asking me to reply to Dr Miller's letter (*Journal*, June 1991, **158**, 863). "Unnecessarily dogmatic" I happily accept: "probably wrong" I think is unlikely. Nonetheless, Dr Miller raises an important issue. The realisation that the minor structural brain abnormalities seen in some schizophrenic patients might be non-progressive has been important in the conceptual shift from schizophrenia being a neurodegenerative disorder, to a neurodevelopmental view. To my eyes, the weight of evidence does not allow us to reject the null hypothesis that there is no progressive enlargement of rebral ventricles in schizophrenia. As Dr Miller ates, one or two studies have reported a weak corre-tion. By the same token, at least one study has ported an inverse correlation: that lateral ventricles mehow shrink as the illness progresses.

Overall, this pattern of findings suggests an ccasional Type 1 statistical error, hardly surprising ven the large number of studies now in existence nd the many possible confounding factors. Even if r Miller were correct, it is still a big jump to suggest iat progressive brain changes might be arrested by ntipsychotic drug treatment. It would be equally easonable to say that prolonged drug treatment ere the cause. In any case, conscientious clinicians ho already pay close attention to drug treatment ill continue to do so, whichever view turns out to be ight.

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he disease concept of alcoholism'

IR: Professor Griffith Edwards has kindly com-nented on my review of Jellinek's monograph, *The isease Concept of Alcoholism* (*Journal*, March 1991, **58**, 431). Like him I have been unable to find any nformation that is not generally known about Dr E. M. Jellinek. As far as I am aware, after making nquiries, no biography of Jellinek has ever been written, although my understanding is that one is urrently being undertaken in the USA. Mr Archer Tongue, a former Director of the International Council on Alcohol and Addictions, who has more knowledge of workers in the alcoholism field than most, was also unable to provide any further information.

It is interesting that Professor Edwards states that Jellinek's ideas really have to be seen as part of a continuing process, with which I would agree, although I myself am not familiar with the references he cites; but there is no doubt, as outlined in the excellent review by Levine (1978) that such concepts as "The disease concept of alcoholism", extended, particularly in the United States, throughout the 19th and 20th centuries, as has the continued debate as to whether alcoholism is best regarded as an illness or as deviant behaviour.

The comment that the alcohol dependence syndrome is a more socially acceptable form of the disease concept is not my original statement but the view of Heather & Robertson (1981) who state ... "therefore the alcohol dependence syndrome is a conception of abnormal drinking based primarily on psychobiological dependence with impaired control as its leading symptom. With the substitution of loss of control for impaired control, how different is this from Jellinek's (1960) formulation?"

Despite this criticism, the alcohol dependence syndrome offers those of us working in this field a practical definition, linking alcohol dependence to drug dependence, and also giving us a model in which the dependence phenomenon is not all or none, but graded, a concept which has considerable importance, both in treatment goals and research into different populations varying in their level of dependence.

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Double blind acceptance

SIR: I am certainly happy to accept that my position and that of Double (*Journal*, April 1991, **158**, 573–574) do not now differ materially. He is right to point out that blindness is prone to be used as a buzz word emptied of its legitimate meaning, so that one should be happier about a study in which the investigators accept they cannot achieve blinding, than one in which blindness is claimed, but is illusory. (In the same way, the key concept of random allocation becomes vacuous when 'random' is taken to mean 'arbitrary' and no longer implies specific measures to minimise the possibility of bias being introduced by the admitting clinician.) The application of a method that will be as scientifically valid as possible in a real clinical situation, with the limitations which that inevitably introduces, remains the goal of study design. Scientific rigour in anywhere near an absolute sense is rarely attainable, and the editorial peer review process should regard a study report in which the limitations of the results are specified clearly as more acceptable than one in which the problems have been swept under the carpet, although inferable by a reasonable measure of experience-based lateral thinking.

The application to clinical and preventive practice, in the absence of clearcut results, is also a very important issue. Often one cannot simply ignore an issue: to do so is effectively to act as if the status quo were established. This applies whether the problem lies in inadequacy of method or simply inconclusive results: should one treat mild hypertension, although the (very large) MRC mild hypertension trial did not detect any clear effect on mortality?

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This correspondence is now closed. I.P.

Ordering thoughts in thought disorder

SIR: McGrath proposes a hypothesis suggesting the involvement of frontal lobe dysfunction in schizophrenic thought disorder (*Journal*, March 1991, **158**, 307–316). He argues mainly from the similarity between the pattern of language deficit in thought disorder and the pattern of cognitive–behavioural deficit in frontal lobe syndrome.

One further link between thought disorder and frontal lobe dysfunction is their association with eye tracking disorder. Among other symptoms and signs, thought disorder has one of the strongest associations with eye tracking disorder (Keefe *et al*, 1989). Eye tracking is controlled by a number of brain areas. One such area, thought to be affected in schizophrenia, is the frontal eye field (Fukushima *et al*, 1990), located in the prefrontal cortex.

Thought disorder encompasses a variety of phenomena. The proposed "prefrontal-basal ganglia loop" may account for only part of the diversity. Apart from the basal ganglia and the thalamus, the prefrontal cortex has reciprocal connections with the posterior association cortex, and limbic structures such as the hippocampus and the amygdala (Fuster, 1987). For example, one such area, the temporal cortex, is important in relation to category knowledge (e.g. Damasio, 1990). Categorisation is affected in some patients with thought disorder.

It seems plausible to propose that many prefrontal related loops (a distributed network radiating from the prefrontal area) including for instance, a prefrontal-temporal pathway, are affected in schizophrenic thought disorder. The different aspects of thought disorder (loosening of association, poverty of content of speech, etc.), may reflect differential dysfunction of these loops. It is important that studies relating thought disorder to brain mechanism take into account the various dimensions of thought disorder (rather than a global thought disorder measure), and study simultaneously a number of brain areas in order to capture some of the more subtle interactions

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SIR: McGrath's review (*Journal*, March 1991, **158**, 307–316) omitted mention of cognitive behaviour therapy strategies which are attracting increasing attention in the management of schizophrenia (e.g. Perris, 1989). The stages of therapy would appear to be rapport building, examination of the antecedents of psychotic breakdown, weighing of evidence, and reality testing, with generation of alternative hypotheses using a normalising rationale (Kingdon & Turkington, 1991). Supplementary techniques include reduction of the emotional investment of psychotic symptoms and inference chaining to identify underlying schemata. These techniques seem to be most effective in conjunction with standard management regimes in the setting of a comprehensive psychiatric service. We describe the first reported use of these techniques in a thought-disordered hebephrenic patient.

Case report A 22-year-old single man presented himself to our psychiatric reception area in a floridly thought-disordered state, with prominent paranoid delusions and incongruity of affect. These symptoms had worsened over a two-week period, during which time his sleep became progressively disturbed. He had experienced two schizophrenic episodes during the previous four years, which were treated with neuroleptics and cognitive therapy, and had returned to work on both occasions. No underlying disorder or history of drug abuse was detected He was admitted, and treated with neuroleptics Cognitive therapy sessions were included in his management programme. Rapport was established early but progress was impeded by intermingling of themes and derailment, which at times lapsed into incomprehensibility. He gave informed consent to the videotaping of an interview for teaching purposes. Review of this demonstrated that four clear themes were present These were: references to a road traffic accident that he had witnessed, his mother's ill-health, concern about somatic symptoms of anxiety, and finally intermittent references to the videotaping process itself as being a form of experimentation. In relation to the latter, he commenced the interview by referring to his half-Jewish parentage and later ecifically mentioned experimentation. These specific fears out the videotaping process were decatastrophised After peated reviewing, such references accounted for all eas that had previously appeared incomprehensible. bsequent sessions had clear foci incorporating the sleep sturbance and stressful circumstances as a rationale to plain his symptoms. This may have contributed to a rapid provement allowing him to be sent on extended leave om hospital within three weeks

here are few references in the literature to erapeutic interventions for schizophrenic thought isorder (Birchwood *et al*, 1988). Yet such disorder is ommon and profoundly interferes with communiation. It is a source of frustration to both patients nd clinicians. Harrow & Prosen (1978) demonrated in a controlled manner that over 90% of termingled material in schizophrenic thought isorder seemed to relate in some way to patients' ersonal experiences; this would therefore seem ertinent data for collaborative work between atient and therapist. Using audio and videotape for nterviews may assist in clarifying the antecedents of sychotic breakdown from seemingly incomprehenible material. This is a crucial step in the process of ognitive therapy with these patients.

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Anabolic steroid use outside competition

SIR: Previous correspondence has indicated the widespread use of anabolic steroids among athletes, alerting practitioners to their willingness to try new drugs offered by friends, and suggesting that anabolic steroid abuse as an aetiological factor should be suspected and objectively monitored (Choi & Parrott, 1989). My own personal experience reinforces this warning. For several years I have trained regularly in busy gyms in Edinburgh, and during this time I have become aware of the surprising extent of anabolic steroid use at levels of ability and attainment far removed from the top class competitive arenas traditionally associated with drug abuse in sport (Williamson, 1991).

It is clear to me that the vast majority of anabolic steroid consumption occurs at 'grass roots' level among individuals never destined to compete, nor even aspiring to, but simply taking the drugs in order to improve their strength and physique. Contrary to the experience of Drs Choi & Parrott, I have been astonished at the frank openness with which athletes have discussed their drug abuse. I too have been horrified to hear of misguided advice leading to, for example, ingestion of oestrogen antagonists in the belief that they are anabolic steroids, or salt tablets and aspirin to raise blood pressure and 'thin the blood' before a workout in the belief that this will force more blood into the muscles and give a better 'pump'. The recognition that anabolic steroid use is far more widespread than previously appreciated is also occurring in the USA (Yesalis *et al*, 1989), where it is now estimated that over one million people currently use anabolic steroids. Particularly worrying for Edinburgh practitioners, in the light of the high incidence of HIV infection among intravenous drug abusers in this city, is the news that athletes have caught AIDS from injecting anabolic steroids with infected needles (Sklarek *et al*, 1984).

As psychiatrists, we should be concerned at news of the epidemic growth of anabolic steroid use in this country in the light of recent reports of a high incidence of aggression and frank psychiatric symptoms (Pope & Katz, 1988), and also dependency (Yesalis *et al*, 1989) among steroid users. Perhaps we shall soon be including urine 'dope tests' among our routine investigations for organic precipitants of psychiatric illness. I am planning further research on this unique group of individuals.

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WILLIAMSON, D J. (1991) Anabolic steroids Edinburgh's lesser known drug problem *Edinburgh Medicine*, **65**, 6–7

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Violence and sudden death

SIR: I read with great interest the paper on "Suicide and unexpected deaths among psychiatric in-patients" by Morgan & Priest (*Journal*, March 1991, **158**, 368–375). They have raised some very important issues.

Drs Morgan & Priest indicated that communication difficulties, low levels of available staff, or absence on leave may have been important in some cases of their series of suicides. Our work on violence (including self-harm) has already demonstrated this quantitatively (e.g. James *et al*, 1990). Of particular interest is the positive relationship between levels of agency (temporary) nursing staff and violence, and a negative relationship between levels of permanent nursing staff and violence. Other studies of in-patient suicides have indicated authoritarian attitudes and under-involvement of medical staff (Langley & Bayatti, 1984) and increased vulnerability among nursing staff in conflict (Morgan & Priest, 1984) as contributory factors. All these studies indicate that adequate provision of well trained staff with an appropriate hierarchical support structure is vital, particularly in the modern era of community psychiatry, cost cutting and audit.

In a further study of violence on a high-dependency mental handicap ward (Shah & Piachaud, 1988), 620 violent incidents over a 21-month period were identified. Four patients accounted for 74% of this violence, and two of these four most violent patients suffered sudden unexpected deaths during the study period. Both these patients were in their early twenties and physically well. In one case the cause of death was spontaneous jejunal rupture with peritonitis and in the other case, dissecting aneurysm of the thoracic aorta. Both these causes of death are rare even in the surgical literature. Shortly after completion of the study, a third violent patient died suddenly from acute pneumonia. Although the numbers were small for statistical analysis, this apparent relationship between violent behaviour and sudden death is of interest. It could be argued that these sudden deaths could be avoided if strategies to reduce violent behaviour were available. This is another area that needs systematic exploration and I would be interested to hear of such cases.

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Treatment-resistant depression

SIR: We noted the letter by Malizia (*Journal*, Jul 1990, **157**, 145). Regarding the Tyrer & Murph article also published in the *Journal* (January 1990 **156**, 115–118) on a case of treatment-resistant depression, we are in agreement with Dr Malizia. However, we believe that the following issues deserv further comment. Treatment resistance must b clearly defined. Adequate duration of treatment dose, and blood levels must be established. The differential efficacy within the same individual of one antidepressant over another must be determined.

The issues of diagnostic criteria, comorbidity and personality disorders are increasingly complex. The pharmacological factors may be simplest to define. It would seem appropriate, then, to work towards the establishment of a common system, regarding duration of treatment, dose, and blood levels, lest the important and painstaking work of investigators such as Drs Tyrer & Murphy and others be marred by vague concepts of treatment resistance.

Ayd (1983) highlighted the problem of treatment resistant depression, noting the recommendations of the World Psychiatric Association. He discusses the distinction of absolute and relative treatment resistance, the former being defined as failure to respond to 150 mg per day of imipramine, or its equivalent, for four to six weeks, and the latter as failure to respond to an inadequate course of treatment. This clarification fails to consider well established findings of the 'relative' efficacy of the 150 mg per day dose of imipramine. Simpson *et al* (1976) report that 300 mg of imipramine is clearly superior to 150 mg per day. The same effect has been demonstrated for other antidepressants.

It is imperative that we arrive at a consensus opinion regarding criteria to define the adequacy of a treatment trial. It has been relatively well established, at least for imipramine and nortriptyline, that blood levels may be used to guide therapy. In cases where blood levels are not available, it is increasingly advisable to use imipramine at 300 mg per day, or s equivalent, before declaring the patient a non-sponder.

The important review of Quitkin *et al* (1984) ddresses the question regarding the length of treat-ient and its relation to treatment resistance. He uggests that there is a paucity of treatment trials xtending beyond four weeks, although some liter-ture suggests that treatment extended to six weeks nay improve response, particularly in those patients without melancholia. He strongly argues for the xtension of treatment trials to at least six weeks. It as not been established whether one tricyclic is more ffective than another. If a patient cannot tolerate an dequate' dose of a tertiary amine, a trial of a econdary amine may be indicated. A monoamine oxidase inhibitor (MAOI) may be indicated subsequently, if one has not already been employed at a lose corresponding to 90 mg of phenelzine or 60 mg of tranylcypromine. Alternative therapy such as luoxetine, psychostimulants, lithium or thyroid ugmentation, as well as combination regimens, may be considered when first line treatments have failed.

Until the problem of classification is resolved, we suggest that investigators report diagnostic criteria applied and the parameters of pharmacological treatment employed, including duration of treatment, dose of drugs, concomitant medications, and blood level data when available. Perhaps a better way of defining treatment resistance might be lack of response to 300 mg of a tertiary amine or a secondary amine such as nortriptyline at a blood level of 100 ng/ml, 90 mg of phenelzine, or 60 mg of tranylcypromine with platelet MAOI inhibition of 80% for a minimum of six weeks. These criteria may help to define treatment resistance. While this may not always be data based, it would allow for a certain amount of standardisation across sites.

Finally, it is well established that comorbidity on both axes I and II effect outcome. A new and more inclusive taxonomy should be multidimensional and allow for the characterisation of depressive subtypes, comorbid anxiety and psychotic disorders, character disorders and patterns of substance use, as well as definitive pharmacological parameters to guide treatment.

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Psychiatry and post-traumatic stress disorder

SIR: Kohen's letter on the "Psychological sequelae of torture" (*Journal*, February 1991, **158**, 287) and her reference to Turner & Gorst-Unsworth (*Journal*, October 1990, **157**, 475–480) underlines the reluctance of the body of British (and Australian) psychiatrists to grasp the nettle of the significance to psychiatry of the concepts embodied in the diagnosis of post-traumatic stress disorder (PTSD). Her concise but dramatic picture of the consequences of the widespread use of torture in Turkey – without mention of PTSD – illustrates the wide-ranging pathology in both the persecuted and the persecutors, and intergenerational effects. If one extends this view of torture to terrorism and violence generally, the social, as well as psychiatric, consequences of the sort of events associated with a PTSD become monstrous (Burges Watson, 1990).

The scanty involvement of British psychiatrists at the Second European Conference on Traumatic Stress held at Leeuwenhorst in The Netherlands in September 1990, compared with the large number of psychologists, is a cause for concern. Perhaps after side-stepping the psychological consequences of trauma for nearly 100 years, psychiatry finds it difficult to reassess its position. There is abundant evidence that violence breeds violence and, as Bowlby (1984) said "It has been extremely unfashionable to attribute psychopathology to real life experience". Perhaps even more telling is Guntrip's (1971) comment "An aggressive society becomes self perpetuating, a nearly insoluble problem".

Dr Kohen is not alone in seeing a connection between unbridled violence, terror and human degradation and a wide variety of presenting psychopathological states (Veterans' Administration, 1985; Ulman & Brothers, 1988), although the relationship and the extent of the relationship remains to be determined. Is psychiatry going to leave the responsibility of investigating this primarily in the hands of psychologists?

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Access to Health Records Act, 1990

SIR: I feel it is important to draw colleagues attention to the likely effects of this Act.

From 1 November 1991, patients will have a statutory right of access to their health records. From 1987, this has applied to computer health records (Data Protection Act Subject Access Modification (Health) Order, 1987), but the new legislation relates also to manually written health records.

The only information which may not be revealed is that which the record holder believes likely to cause serious harm to the physical or mental health of the patient or any other person. The record holder must not reveal information related to or provided by an individual, other than the patient, who could be identified by that information, unless that person consents. (This restriction does not apply if a person so identified is a health professional who has cared for the patient.)

This is important for child psychiatrists because:

(a) The application can be made by a child (under the age of 16) if the holder is convinced the child is capable of understanding the application. It could also be made by a parent (or person having parental responsibility) but only with the child's consent (if capable). If the child is incapable of understanding, but access is in its best interest, it can be given.
(b) Confidentiality – any information given by a child in the expectation that it would be kept confidential cannot be revealed.
(c) The Act is unclear about situations where the parent's and the child's interests do not coincide, i.e. where there is suspicion or certainty of child abuse.

It is important for all psychiatrists because the record holder is the person who decides whether or not to reveal information, on the grounds that it is or is not likely to cause serious harm to the physical or mental health of the patient or any other persons. If the record is held by a health service body the 'appropriate health professional' must be consulted. If th holder of the record is the General Practitioner (GP he or she can give access but need not consult with th specialist. Hence, any psychiatrist writing to a G and conveying information which he or she fee might be damaging to the patient to know might be well advised to state this in the letter. The decisio about potential harm, however, rests with the record holder – the GP. It is important for there to be liaiso between psychiatrists and GPs before extracts from psychiatric records are released.

The record holder may reveal information given by a health professional without the consent of that person. If the information relates to, or is provided by, another individual, not a health professional, i may not be revealed without the individual's consent This will mainly apply to two groups – patient' relatives, and other non-health professionals such as social workers or teachers.

It is not essential to produce all the records (any potentially harmful information may be kept in a separate section) but the records must be kept in a way that will facilitate access if requested. Should we be copying the Social Services system of a main file which is open, and a smaller confidential section containing potentially harmful, confidential and third party information?

The BMA's advice is to avoid expressing views about the patient's behaviour or temperament. This is extremely difficult for psychiatrists to follow. Correct factual information which can be verified by the patient would be valuable, as would be a clear and agreed treatment plan. Case notes may in the future evolve without a description, or reflective musing, and with an inhibited kind of formulation, differential diagnosis, and prognosis. This will have an adverse effect on patient care.

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Chloroquine-induced mania

SIR: Attention has been drawn in these pages to malaria presenting as depression (Arun Prakash & Stein, *Journal,* April 1990, **156,** 594–595). With increasing distant foreign travel, clinicians should be aware of the psychiatric complications not only of the disease but also the drugs used in prevention and treatment. A toxic confusional state with psychosis has been reported as a rare adverse effect of chloroquine (Brookes 1966; Rockwell, 1968; Good &

hader, 1977). The few cases that have appeared in e literature in the past 30 years, including those ccurring in children (Holder, 1988), have had simiar features. An atypical case is presented of a man ith an affective psychosis in clear consciousness.

ase report. A 33-year-old entertainer with no family or ersonal history of psychiatric illness was brought to ospital in an agitated state. Five weeks earlier he had een prescribed proguanil (200 mg/day) and chloroquine 300 mg/week) as antimalarial prophylaxis before a holiday o Africa. After each dose of chloroquine he had noticed a rief period of arousal. On return from holiday he took a dose of 600 mg of chloroquine in error, after which he was mildly irritable and overactive. He continued to take both drugs in the prescribed dosage and became increasingly disurbed over the following week. On admission to hospital e was overactive, irritable, and talkative, experiencing acing thoughts and expressing delusions of reference and grandeur. He was fully alert and orientated and there were no features suggestive of a confusional state. Physical examination, and haematological and biochemical investigations were all normal. A diagnosis of hypomania was made and he received a single dose of 5 mg haloperidol. His mental state returned to normal within three days and the antimalarial prophylaxis was reinstated The day after eceiving a further 300 mg of chloroquine he again developed features of a hypomanic episode without confusion. Recovery was complete after three days and he was discharged. Three weeks later he developed a brief episode of agitation without psychosis and without taking further medication. He has remained well in the year of follow-up.

I believe this is the first reported case of a true manic episode without confusion in response to chloroquine. This drug has also been reported to cause involuntary movements of extrapyramidal type (Umez-Eronini & Eronini, 1977), and it is possible that these two rare adverse effects may be mediated by a common dopaminergic pathway. Doctors prescribing antimalarial medication routinely should be aware of the neuropsychiatric complications, and psychiatrists should be as alert to the importance of a history of recent travel as their physician colleagues.

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Catatonia and NMS

Sir: I read with interest the article entitled "Catatonia harbinger of the neuroleptic malignant syndrome" (*Journal*, March 1991, **158**, 419–421) by Drs White & Robins. I would like to describe a case of neuroleptic malignant syndrome (NMS) consistent with their findings.

Case report. A 53-year-old single man, with a 30-year history of recurrent presentations of schizophrenia with catatonic symptoms, presented on this occasion with onset of catatonic symptoms (mutism, negativism, odd posturing, and waxy flexibility) over a few days This was his usual mode of presentation. Physical examination on admission revealed a tachycardia of 130 and a temperature of 38.5°C In view of the pyrexia, autonomic symptoms and catatonia, further investigation for NMS was undertaken A rising level of 5000 Iv/l of creatine phosphokinase (CPK) was noted. He was transferred to a medical ward and received symptomatic and supportive treatment with full recovery. His catatonic symptoms also improved.

In this case, the only differences from his usual mode of presentation over many years were the presence of autonomic symptoms and hyperpyrexia with raised CPK. The hypothesis advanced by Drs White & Robins could explain the emergence of NMS in this case. Their hypothesis is based upon reports of a central dopamine deficiency in NMS (Fricchione, 1985; Horn *et al*, 1988) and the use of reduced diencephalic dopaminergic transmission to explain hyperthermia and catatonic signs in lethal catatonia (Mann *et al*, 1986). They suggest that already deficient dopaminergic activity in the brain of catatonics would be aggravated by the dopamine blockade produced by neuroleptics.

I would like to suggest that the possibility of NMS should be considered in anyone presenting with catatonic features. The reasons for this include: catatonic features may be a presentation of NMS, even in patients with previous presentation of catatonia; catatonia may predispose to NMS as hinted by Drs White & Robins; and, in the presence of catatonia, unless specifically looked for, other signs of NMS may not be obviously apparent. Perhaps, every patient with catatonia should have serum CPK levels checked.

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Mann, S C., Caroff, S N., Bleier, H. R , *et al* (1986) Lethal catatonia *American Journal of Psychiatry*, **143**, 1374–1381

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Amitriptyline in clozapine-induced sialorrhoea

SIR: Sialorrhoea is a recognised side-effect of clozapine (Kane *et al*, 1990). We have found it to be common, occurring in the majority of patients we have treated so far with this agent. Its cause is unknown, and its occurrence somewhat paradoxical as clozapine has anti-cholinergic effects which one would expect to produce dry mouth. As clozapine does not induce significant extrapyramidal symptoms (Meltzer, 1990) it cannot be due to pseudo-Parkinsonism.

Four treatment-resistant schizophrenic patients showed a significant response to clozapine in the dosage range of 400 to 600 mg per day. They developed persistent severe drooling to the point that they would choke on their saliva when supine in bed. All patients were gradually switched from their original neuroleptics, to which they had shown only partial response, to clozapine. During this time they were maintained on their anti-Parkinsonian agents whose anti-cholinergic effects were not sufficient to prevent this severe drooling.

Nonetheless, it was decided to give a trial of amitryptyline, known to be strongly anti-muscarinic. All four patients showed marked and sustained improvement to a dosage range of 75 to 100 mg per day with the drooling reducing substantially or disappearing.

There was no exacerbation of psychotic symptoms in any of the patients when amitriptyline was added Whether or not the benefit from amitriptyline is related to its anti-muscarinic effect remains to be seen

KANE, J , HONIGFELD, G., SINGER, J., *et al* (1990) Clozapine for the treatment-resistant schizophrenic a double-blind comparison with chlorpromazine (Clozaril Comparative Study Group) *Archives of General Psychiatry*, **45**, 789–796

MELTZER, H Y. (1990) Clozapine mechanism of action in relation to its clinical advantages In *Recent Advances in Schizophrenia* (eds A. Kales, C N Stafanis & J. Talbot) pp. 237–256. New York Springer Verlag.

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CORRIGENDA

Journal, February 1991, **158**, 218 (first paragraph). The product-moment correlation should read 0.154, not 0.012.

Journal, February 1991, **158**, 297 (Conversations with Pre-school Children) The publisher should read London: W. W. Norton, not New Haven/London: Yale University Press.

A HUNDRED YEARS AGO

On the Therapeutic Value of Indian Hemp

I have during the last few years been accustomed to prescribe Indian hemp in many conditions, and this drug seems to me to deserve a better repute than it has obtained. In one form of insanity, more common in women than in men, and brought on usually by mental worry, often owing to the illness of a near relative or by a moral shock, the drug acts almost as a specific. In this affection the patient is depressed and apprehensive, she imagines that animals are after her or that someone wants to injure her. There is great mental confusion and mental loss, the patient is unable to carry on any conversation, and sometimes is unable to dress herself, the condition being one of acute dementia. I have notes of several such cases that have been cured by Indian hemp within a fortnight. I usually give 10-minim doses of the tincture thrice daily, combined with iron and strychnine. I prescribe also complete rest and plenty of food. The Indian hemp is an essential factor in the treatment, for without it the rapid recovery does not ensue: it seems to remove the mental distress and the restlessness.

Indian hemp has proved very useful in my hands in the treatment of melancholia and mania. I have also found this drug of great value in the treatment of chorea when arsenic fails, as it frequently does. It may be combined with chloral with advantage in such cases. In migraine the drug is also of great value; a pill containing $\frac{1}{4}$ gr. of the extract with or without a $\frac{1}{4}$ gr. of phosphide of zinc will often immediately check an attack, and if the pill be given twice a day continuously the severity and frequency of the attacks are often much diminished. I have met with patients who have been incapacitated for work from the frequency of the attacks, and who have been enabled by the use of Indian hemp to resume their employment. This drug is also a valuable gastric sedative in cases of gastric ulcer and gastrodynia. It may be combined with nitrate of silver, and it increases the efficacy of the latter. Its value is well known to asylum physicians, but it does not appear to have obtained the confidence of the profession generally. Indian hemp is also a very valuable hypnotic.

Reference

British Medical Journal, 4 July 1891, 12.

Researched by Henry Rollin, Emeritus Consultant Psychiatrist, Horton Hospital, Surrey.

British Journal of Psychiatry (1991), 159, 167–171

Book Reviews

Editor: Sidney Crown

Community Mental Health: Principles and Practice. By Loren R. Mosher and Lorenzo Burti. London: W. W. Norton & Co. Ltd. 1990. 449 pp. £24.50.

The subject matter of this book falls into three broad divisions: the principles, context and models of community mental health care; the experience of community services in Italy; and illustrations from the American setting.

The book illustrates nicely the fundamental condition necessary for initiating change in services; the motivation for change arises from dissatisfaction with present community mental health services. The dissatisfaction, however, is accompanied by a vision of the intended future to which the authors subscribe. The early negative aspects raised by the authors include some criticisms of psychoanalysts and biologically based psychiatry. The stance adopted by the authors is the identification of the customer's wants; establishing what is right with the patient rather than what is wrong; and implementing treatment and training in the patient's own territory, i.e. in the community. Diagnosis, as such, is not thought to be helpful, except for research and record keeping, since it gives only an illusion of understanding. The book, however, conveys some ambivalence on the usefulness of diagnosis since the authors argue that the principles and practices to which they adhere are derived from, for example, schizophrenic and bipolar disorders but not primary substance abuse, organic mental disorders and forensic problems. If diagnosis is valueless, why make these distinctions?

Institutions, whether single-specialty psychiatric hospitals or psychiatric units in general hospitals, are considered as aiding social control and removing a problem from public view. The authors do, however, recognise the need for a small number of hospital beds for associated medical treatments and the management of agitated, overactive, acutely psychotic persons who leave open settings and are a serious danger to themselves. The authors put forward some useful principles for good prescribing, although most psychiatrists probably would not agree with the abandonment of routine maintenance neuroleptic drugs in schizophrenia. They interpret their inability to wean their clients off neuroleptics, without an exacerbation of psychosis, as the fault of the drugs. The alternative hypothesis that the neuroleptics were, even at reduced dosage, holding at bay the psychotic exacerbation is not considered. Nevertheless, few would disagree with the authors' contention that drugs are more effective in a positive social context.

The quiet revolution in Italian psychiatric care systems is nicely described. In-patient care in Italy followed a similar pattern to England and Wales from the latter half of the nineteenth century until the 1960s. The work of the late Dr Franco Basaglia, who was influenced by Maxwell Jones, led to the law of 1978 which prohibited all new admissions and readmissions to single-specialty state psychiatric hospitals after specific dates. That is to say, hospital admission, even to psychiatric units in general hospitals, was to be exceptional since community-based facilities were to be comprehensive for defined geographical areas. The problems of implementation are not avoided by the authors, namely that the state psychiatric hospitals still cost as much as when they housed twice as many patients and now absorb 80% of the psychiatry budget.

This is an interesting book written with humanity by genuine adherents to the philosophy of comprehensive community care. There is a visible contrast between the abrasive controversy in the American professions concerning community care and the broad acceptance of the Italian experience of deinstitutionalisation. However, we await with interest the important evaluations of the effects of the Italian reforms on the quality of life of psychiatric patients, their families and the wider population.

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Handbook of Emergency Psychiatry. By Tom M. Brown and Allan I. F. Scott with Ian M. Pullen. Edinburgh: Churchill Livingstone 1990. 208 pp. £9.95.

Psychiatrists receiving emergency referrals have to deal with difficult and potentially dangerous problems. This book will be an educational and reassuring possession for all trainees facing such situations. The authors have been involved in developing emergency services at the Royal Edinburgh Hospital. Their involvement is demonstrated by the relevance and clarity of this book. It is described as a handbook and is indeed small enough to fit into a large pocket or handbag. There is a chapter to cover almost every eventuality. The chapters are short and specific enough to be read just before seeing an emergency referral or immediately afterwards. The book allows seeing emergency referrals to be an educational experience rather than an exercise in trying to think logically while feeling anxious and ignorant.

The first five chapters cover the principles of assessment and management, including basic skills like dealing with emergency telephone referrals The following thirteen chapters cover specific problems such as deliberate self-harm, problem drinking, drug-related problems and the management of violence. There are some useful appendices including examples of specimen letters to general practitioners and aspects of the Mental Health Act as it is applied in England, Wales, Scotland and Northern Ireland

The authors are dogmatic in their approach but this feels appropriate for a handbook. Certain views are expressed which may be contentious. For example, the authors do not believe that victims of violence or disasters should be routinely psychiatrically screened and prophylactically counselled. The book mentions, however, that its views are not universally held so that the reader is not misled.

There is a real need for a handbook of emergency psychiatry that is readable, practical and concise. This book fulfils that role and will be an asset to all those dealing with psychiatric emergencies.

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The Ventricle of Memory. By MACDONALD CRITCHLEY. New York· Raven Press 1990. 223 pp. $47.00.

This book is a gem. Macdonald Critchley, the country's most distinguished elder statesman of neurology, has a wealth of personal anecdotes stored away about the events and personalities of those who shaped the discipline for most of this century. Born in 1900, he has contributed an enormous amount of his own to the world literature on neurology and related topics, but in recent years, now retired to the pastoral Somerset village of Nether Stowey, home for a while of Coleridge, he has taken to delighting his readers with personal essays which explore doctors, diseases and other *desiderata* for those enjoying the lighter side of medical reading.

This is the third volume published by Raven Press in the same, rather elegant, leather-style binding with gold inlay that looks pleasing resting idly on a table, or neatly stacked in a bookcase. It is the most personal of the trilogy, with 21 vignettes about "neurological friends, now departed ... impressions of them" as their lives crossed that of the author.

The subjects chosen are not necessarily so famous today (such as Raymond Garcin, Fritz Grewel or Paul Schuster), although many revered colleagues are represented. The full list of names need not be given, as b this point, any interested reader will be making a note t put in an order with the local bookseller, or publishe as soon as possible. My favourites were the profiles c Irving Cooper, Foster Kennedy, Jean L'Hermitte an Alexander Luria. However, the man I would most hav liked to eat dinner with was surely the colourful Jame Risien Russell.

The only disappointment is that Macdonald Critchle knows much more than he has told, and the hints ar tantalising. Why was there a mutual dislike betwee William Adie and Kinnier Wilson? What did Foste Kennedy tell him of Gowers' foibles? It is only when h comes to Sir Francis Walshe that the curtain is partiall raised.

In the preface, Macdonald Critchley informs us tha he is "not quite old enough to have met Hughling Jackson, Gowers, Charcot, Edinger or Pierre Marie" However, he also, I suspect, knows more about them, from the personal point of view, than anyone else aliv today.

> "What is an epigram? a dwarfish whole its body brevity, and its wit its soul" S. T. Coleridge

MICHAEL TRIMBLE, *Reader in Behavioural Neurology, Institute of Neurology, London WC1N 3BG*

The Epidemiology of Alzheimer's Disease and Related Disorders. By ANTHONY JORM. London: Chapman and Hall 1990. 234 pp. £25.00.

In the nine years that have elapsed since the publication of Mortimer and Schuman's book on *The Epidemiology of Dementia*, there has occurred an explosion of knowledge about the possible nature of dementing disorders which demands a fresh look at epidemiological issues. Anthony Jorm has attempted the mammoth task (there are 32 pages of references) of compiling a contemporary text single-handed, while acknowledging that published work is accumulating so fast that this may never again be possible.

Beginning with chapters on Classification and Assessment – the latter focusing on current diagnostic instruments such as GMS, CARE and CAMDEX – epidemiological terminology inevitably intrudes which requires explanation. This is offered in Chapter 3, "Epidemiological Research Methods", after which the remainder of the text is devoted to core issues such as prevalence, incidence, survival and mortality, psychosocial correlates and risk factors for dementia. The emphasis is principally, but not exclusively, on Alzheimer's disease. These chapters are competently presented: with reference to risk factors, the author uses meta-analysis to clarify whether these are likely to be real or improbable determinants of disease. Always convincing, conclusions are based on evidence clearly presented, often in tabular form. Additionally, there is an ntriguing chapter in which the various theories of causation of dementia are tested against known epiemiological findings, while the final chapter, "Prospects or Prevention", implies that for Alzheimer's disease, voidance of head injury offers the best hope – at east until human beings can select their first degree relatives!

This book should satisfy the specialist, the reader een to know more about epidemiology and its appliation to psychiatric disorders, and those who are just nterested in dementia. All will find it informative and mmensely readable.

GARRY BLESSED, *Honorary Scientist,*
MRC Neurochemical Pathology Unit,
Newcastle General Hospital

Effective and Community Mental Health Services. By PETER HUXLEY. Aldershot: The Press Office. 226 pp.

Professor Huxley's book is a clearly written, concise, eview of current opinion and research evaluation of Community Health Services. Although the author emphasises that Mental Health Services should not become tied to one service delivery strategy, the overwhelming emphasis, reflecting current trends, throughout the book appears to be that of research into Community Mental Health Centres. Extensive reviews of research literature can be difficult to encompass and to comprehend, but this book is clear and contains summaries and conclusions of each chapter. A minor criticism is of the inadequate index.

A. F. FRANCIS, *Consultant Psychiatrist,*
Menai Day Hospital, Bangor, Gwynedd

Psychiatric Examination in Clinical Practice (3rd Edition). By J. P. LEFF and A. D. ISAACS. London. Blackwell Scientific Publications. 1990. 147 pp. £12.95.

This slim, popular volume offers a mainstream, comprehensive run-through of points to be elicited in a history, accompanied by brief descriptions of psychiatric phenomena. Particularly helpful is the section on personality disorder, which suggests useful, open questions updated for the ICD–10 classification. Additional chapters are devoted to examining children and "difficult patients". However, there are some important omissions. While alcohol is mentioned, there is no template for an alcohol or drug history looking at patterns and routes of abuse. In addition, the context of an assessment is not considered: for example, forensic assessments, the liaison patient and assessments in primary care. Surprisingly, there is no discussion of cultural factors.

A more notable omission, considering that the target readership is most likely to be trainees preparing for exams, is the failure to acknowledge the current form of the membership exam. The different requirements of the clinical presentation in the two parts of the exam could usefully have been added to the chapter on "Case Presentation". As it is, this section is rather brief. It fails to illustrate either how a formulation in clinical practice guides patient management, or, alternatively, what examiners may be looking for from an assessment in the MRCPsych exam.

The failings of the book are mainly generic; namely, that to acquire the skills described, there can be no substitute for first-hand clinical experience accompanied by close and regular supervision. There is little here to add to what may be found in the standard psychiatric textbooks.

NIGEL FISHER, *Senior Registrar, The Maudsley Hospital, London SE5 8AZ*

The Psychology of Marriage: Basic Issues and Applications. Edited by FRANK D. FINCHAM and THOMAS N. BRADBURY. New York and London: The Guilford Press. 1990. 432 pp. £29.95

The editors of this American collection have produced a scholarly text which has as its aim "the documentation of the progress... made in the psychological investigation of marriage". Thirteen papers, plus two commentaries, provide an overview from different sub-disciplines of psychological enquiry, including social, clinical, developmental and organisational

The book is divided into two parts. In Part I, the two opening papers outline the social psychological perspective on marriage and assert that "interdependence is the central construct in the study of close relationships". This interactionist approach, however, they say, is still underdeveloped because "American psychology has been quintessentially a psychology of the individual organism". Other chapters discuss particular issues including sex-role identity in marriage, the impact of children and therefore parenthood, and employment and marriage. In the last chapter of this part, "Marriage and Psychopathology", the authors point to growing evidence that treatment efficacy for schizophrenia, anxiety states, agoraphobia, depression and alcoholism is enhanced by marital therapy or partner involvement in the treatment.

In Part II, application issues are addressed. Included are papers giving an overview and evaluation of the theoretical orientations which have guided marital therapy; discussions of sexual dysfunction and physical aggression in marriage; and a final chapter on the prevention of marital dysfunction. Clinical examples to illustrate some of the therapeutic issues discussed would have greatly benefited this section of the book.

The major criticism of this collection is that the editors claim to bring together different orientations within psychology, and yet the book does not include a serious psychodynamic perspective. In fact, when psychoanalytic views are referred to, they are dismissed rather casually, e.g. "although the psychoanalytic orientation provides information about pathology, it has yet to contribute any major breakthrough in understanding personal dynamics". Object relations theory within the psychoanalytic tradition addresses itself exactly to interpersonal interaction and is, therefore, particularly valuable for understanding and treating couples. This orientation, often referred to as "the British school", has not yet established itself in the American psychoanalytic community and therefore, perhaps, with a few notable exceptions, there is little psychodynamic marital psychotherapy practised. This may explain the omission.

Other than this, these papers offer a good overview of the social psychology of marriage, although more for the academic researcher than for the clinician. The latter would, however, further his/her general knowledge from this text.

STANLEY RUSZCZYNSKI, *Deputy Chairman and Senior Marital Psychotherapist, Tavistock Institute of Marital Studies, London NW3 5BA*

Culture, Health and Illness (2nd Edition). By CECIL G. HELMAN. London: Butterworth. 1990. 344 pp. £12.95.

What may appear as a light at the end of a tunnel to a person from one culture may be perceived as a headlamp of an oncoming underground train to a person of another. It is essential for psychiatrists to understand a patient's language, thinking, feelings and behaviour, in order to make an accurate diagnosis and institute appropriate treatment. Where a doctor and his/her patient come from the same background then the medical model – physical, psychological and social – is adequate. But if a psychiatrist sees a patient from a culture other than his or her own, it is essential to understand the patient's cultural habits, religious beliefs and ethnic characteristics. However, other variables such as age, sex and social class should also be considered.

The author clearly explains in this book that a patient remains the most important person in medicine and that one's cultural customs must be respected in a doctor–patient contact, particularly in this day and age of Consumer Choice. In psychiatry, the understanding of culture, religion and ethnicity is perhaps far more useful than in any other branch of medicine.

In 12 chapters, Dr Helman describes explicitly some cultural factors in psychiatry: stress, pain, epidemiology, pharmacology, gender and reproduction, diet and nutrition, and some rituals used in management of misfortunes. He introduces the reader to some of th basic ideas and research in medical anthropology bu focuses on its practical relevance to both medica (including psychological) care and preventativ medicine.

The chapter on cross-cultural psychiatry is full of ne information. For example, glossolalia (speaking i unknown tongues) is a dissociative, trance-like state i which the participants tend to have their eyes close make twitching movements, flush, sweat and fall. The may even tear their clothes. It is a feature of religiou practices in parts of Africa, India, Caribbean, USA Southern Europe and among many Pentecostal churche in the UK (including those of West Indian minorit groups). It may seem evidence of a mental illness, suc as schizophrenia, to a Western-trained psychiatrist.

Currently, there is a national argument in Britain an it is being alleged that Caribbeans and Africans (as wel as the Irish) are being too frequently diagnosed a schizophrenics. It is abnormal but acceptable behaviou in Eastern subcultures, for instance, when a patien describes his or her feelings by saying that "I am bewitched" or "I have been possessed by a spirit" or "a neighbour or a wicked relative has cast a spell on me" and "therefore I am a victim of an illness". In a Wester setting, people making such statements are likely to be diagnosed as psychotic, probably schizophrenic.

Every psychiatrist, psychologist, MRCPsych candidate, psychiatric nurse or social worker, and other psychiatric care staff should buy a copy of this valuable book.

BASHIR QURESHI, *General Practitioner, Hounslow, London*

Handbook of Sexual Assault: Issues, Theories and Treatment of the Offender. Edited by W. L. MARSHALL, D. R. LAWS and H. E. BARBAREE. New York: Plenum Press. 1990. 405 pp. $50.00.

The title of this book is perhaps an unfortunate one: it is neither a handbook nor a 'how to do it guide', but an exhaustive summary of present thinking and knowledge about sexual offending. The list of contributors, mostly from North America and Canada, are all highly respected and influential names in their field and read like a 'Who's Who?' of forensic sexologists. Although the subject is an emotive one, the contributions throughout are thoughtful, and scholarly in their approach. A balance is maintained between practical clinical issues and a more theoretical academic perspective.

The book is divided into five sections: the introduction considers the nature and extent of sexual assault and the development of taxonomic models. Sections two and three deal with sociological, biological and psychological factors influencing sexual assault. Section four discusses a variety of treatment models and evidence for their fficacy. As well as covering some of the better-rehearsed arguments, the editors also include aspects that are less requently discussed: there is an excellent chapter reviewng the influence of pornography on sexual offending Murray & Laws) and a thought-provoking contribution rom Judith Herman offering a 'feminist perspective on sexual violence'.

I would recommend this book to anyone who is involved in treatment, rehabilitation or research related to sexual offending. The editors end by reminding us that only a small proportion of sexual offenders needing treatment are offered it, particularly in a community setting. The problem of persuading Governments and funding agencies to support treatment and research efforts is a real obstacle to real progress in advancing the current state of knowledge. It is of note that very little of the research discussed in the book is by British workers: one must hope that if the British Government's commitment to tackling this problem is a genuine one, then resources will be provided for similar initiatives to take place here.

GILLIAN MEZEY, *Institute of Psychiatry, London*

The Bridge Between Neurology and Psychiatry. Edited by EDWARD H. REYNOLDS and MICHAEL A. TRIMBLE. Edinburgh: Churchill Livingstone. 1989. 424 pp. £47.50.

This book is not really an adequate memorial to Sir Denis Hill, the man and the psychiatrist, nor is it, taken as a whole, a very stimulating contribution to establishing the relationship between neurology and psychiatry.

As a Maudsley registrar, I found Professor Hill impressive, kindly and interesting. Much later, after his retirement, I enjoyed talking to him during a period he spent as a visitor to the University Department of Psychiatry in Oxford. I would like to know more about Sir Denis both as a person and as someone who made great contributions to British psychiatry at time of rapid change. It is one of the disappointments of this book, that such curiosity is largely unsatisfied. The editors state that they discussed their plans with Sir Denis shortly before his death and that he was enthusiastic. Indeed, the idea is an interesting one, but it is not fully realised.

The paper by Sir Denis from which the book takes its title is reprinted here and is well worth reading. Professor Lishman expands, comments and usefully develops some of its themes. Thereafter the bridge between neurology and psychiatry is represented (and sometimes ignored) in a miscellany of papers by psychiatrists, neuropsychiatrists and neurologists which cover a wide range of topics with contents ranging from broad brush reviews to detailed expositions of smaller topics.

I found the individual papers very mixed. This seems, in part, to be due to uncertainty about the audience; is it for the general psychiatric reader or for neuropsychiatrists? Were authors asked to present straightforward reviews or to present new and challenging ideas? It would have been better if the editors had formulated more challenging questions for their contributors and persuaded them to concentrate on bridges between neurology and psychiatry. This might have avoided a marked impression of specialists resolutely pursuing their own areas of interest with little concern about the context.

Chapters by Cawley and Crisp say something of Sir Denis's contributions to psychiatry. Although interesting, they manage to leave out the real person (not mentioning his family) and do not go far enough in examining his influence on the development of psychiatry.

Some contributors have made a real effort to present new material in a way that fulfils our expectations; Benson on disorders of verbal expression, and Oxbury on memory and hippocampal pathology, are examples. Others have written good reviews of particular areas. Not enough of the chapters make me, as a general psychiatrist, think about what neuropsychiatry has to offer clinical practice and what it should be contributing to training. Few (if any) of the chapters would convince the general neurologist that psychiatrists have exciting and useful things to say that are fundamental to their own everyday clinical practice.

It is undeniable that psychiatrists are not as neurologically knowledgeable and competent as they should be and equally true that neurologists are frequently psychiatrically naive. It would be valuable to know what role we should be expecting from neuropsychiatry and what it has to offer as a basis for psychiatrists and what it has to offer to neurology. A real tribute to Sir Denis as a person and to the ideas in his paper which is the heart of this book, would have been a book which presented new ideas and made us look at old ideas in different ways

RICHARD MAYOU, *Clinical Reader, University Department of Psychiatry, Oxford*

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Introduction

ISRAEL KOLVIN

Our knowledge of childhood depression and its origins is increasing rapidly. This account focuses on some themes emerging from recent research in consulting clinical practice concerned with over 300 consecutive referrals of children aged 9 to 16 years. A stratification procedure was employed with selection of cases for probability of childhood depression in the population concerned; we over-sampled from that proportion of the population which had a potential for an excess of childhood depression.

The data gathered were used to answer some of the questions crucial to clinical practice which are outlined below.

How common is depression in a clinical sample? Previously, it was thought that depression in childhood only constituted a small proportion of the cases seen in routine practice but this did not prove to be the case.

What is the basis of the previous underdiagnosis? The main explanation is that depression coexists with other psychiatric disorders. Previously, we have tended to categorise children in a single psychiatric category, which constituted the main diagnosis, and to ignore other aspects of disturbance. However, this is an artificial solution, as often a number of disorders coexist in the same child. This is the subject of co-morbidity. For instance, one-sixth of our sample had a phobic disorder, and of these, two-thirds were also depressed; similarly, one-fifth of those with conduct disorders proved to be depressed. Thus, our findings suggest that depression may have remained undetected because of reliance upon questionable traditional systems of classification.

How useful is information obtained from interviewing mothers? In paediatric psychiatry the tendency has been to gather information from the mother alone and pay little attention to the child. But empirical research demonstrates that correspondence between parent and child is not extensive. In our study there was relatively good agreement of occurrence of symptoms between mother and child where these were potentially objectively observable, e.g. loss of appetite, loss of interest and initial insomnia. However, some features, more subjective in nature, were reported twice as often by the child as by the parent, and some (such as suicidal ideation) three times more frequently. Thus, crucially important information may not be obtainable from the mother, but from the child.

What are the implications of these findings? They confirm that there is more serious psychological distress among children seen in a psychiatric clinic than was previously thought, and that this is often not apparent to their parents; unless this is systematically and directly sought from the children and adolescents, it is likely to remain unrecognised. Secondly, they show that children and adolescents report more depressive symptoms than do their parents. As parents so often appear unaware of the true depth or intensity of their children's distress and even suicidal ideas, should we confine ourselves to interviewing children? We think not; there is good evidence that information from parents is important and useful and hence should be seen as complementary to that from the child.

The data also shed light on classification issues, particularly the distinction between factors of 'endogenous' depression and 'negative cognitions' and on the limited utility of self-report measures for diagnostic purposes. They also illustrate that some forms of prior environmental adversity have important but varying influences for different types of childhood depressions, and cast doubt on the validity of the DST as a diagnostic test for major depressive disorders in children.

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itish *Journal of Psychiatry* (1991), **159** (suppl. 11), 9–21

The Newcastle Child Depression Project
Diagnosis and Classification of Depression

KOLVIN, M. L. BARRETT, S. R. BHATE, T. P. BERNEY, O. O. FAMUYIWA, T. FUNDUDIS and S. TYRER

A total of 275 successive referrals to a university child psychiatry unit out-patient department were examined using the Child Depression Inventory. Of these, 95 children were examined further by a structured clinical interview, and the relationship between different instruments for the assessment of depression in childhood was investigated. Just over one-third of the children (35%) had significant depression, and it was found that depression may be missed unless children with other psychiatric diagnoses are examined closely. Multivariate analyses of the clinical data provided factorial validation of diagnoses when employing different clinical diagnostic schemas.

ur knowledge of depression and its aetiology in ildren was previously limited, but is increasing apidly. Two fundamental issues in the current ebate about depression in childhood are the validity f diagnostic criteria, and how best the classification f depression in children should proceed. With egard to the first issue, some consider it possible diagnose major depression in childhood using iteria identical to those used in adults (Spitzer *et l*, 1978; Puig-Antich, 1980); others feel that ifferent considerations should apply to children. his is reflected in alternative diagnostic schemas, ncluding three from separate centres: those devised y Puig-Antich *et al* (1978), and by Weinberg *et al*, 1973) in the United States of America, and by olvin *et al* (1984) in Newcastle. How valid are each f these in the diagnosis of childhood depression and o what extent do these schemas agree or disagree ith each other?

The second issue is how depression in childhood hould be subclassified. In adult psychiatry, this is a notoriously complex area and even if childhood depression were similar, classification problems would be compounded by issues of child development. Many, therefore, consider it better to describe disorders in a systematic way as there is no consensus of the validity of any sophisticated subclassification. This can be done by giving an account; firstly, of he severity of depression and, secondly, by documenting any specific disorders associated with the llness. The wisdom of this approach is underlined by the fact that it is not yet proven whether depression in children is a homogeneous or a heterogeneous condition. If the latter is true, is depression missed because of concealment by other symptoms and, if so, what is the extent and nature of the association?

The Newcastle Depression Project was set up to examine these and related issues. The aims of this part of the study were fourfold:

(a) to explore the use of the Standard Psychiatric Interview (Goldberg *et al*, 1970) for diagnosing depression in pre-adolescents and adolescents
(b) to assess agreement between different schemas used for diagnosing major depression in childhood and 'validate' each against the other
(c) to explore the extent of mixed depression in childhood with particular reference to conduct, neurotic, and phobic disorders
(d) to examine multivariate approaches to classification of depression in childhood and adolescence.

There were two hypotheses.

(a) Validity of the different diagnostic schemas would vary. Closer agreement would be found between diagnoses that had been achieved using clinical interviews. The Weinberg criteria would perform more satisfactorily if sufficient allowance was made for severity of disorder.
(b) The proportions of mixed depression would vary according to the type of associated disorder.

Method

The method used for aims (c) and (d) above is described separately later in the paper.

Sample selection and exclusions

As part of the Newcastle Depression Project, 316 referrals between 9 and 16 years of age were screened for depression using the shortened version of the Child Depression Inventory (CDI) (Kovacs & Beck, 1977; Carlson & Cantwell, 1980*b*; Kovacs, 1981) at their first appointment. They had all attended the Nuffield Child Psychiatry Unit for the first time, either as an out-patient, day patient or in-patient. The following patients were excluded: those receiving pharmacological agents, those with any significant physical illness, those with diagnosed clinical seizures or other major neurological conditions, those with an intelligence quotient (IQ) of less than 70, and those with autism, schizophrenia or any substance-abuse disorder. Refusals and losses were as follows: in 22 cases (7%) the families did not attend the follow-up interview; six children (2%) were already on medication (for epilepsy or diabetes) and in two cases (0.6%) parental data were not available as the children were in care; a further 11 cases (3.5%) declined to be included in a parallel study which involved the dexamethasone suppression test – a test for disturbed endocrine function. This reduced the sample to 275 cases (90% of original number).

As there were insufficient resources to carry out in-depth interviews on all cases, it was decided to use a stratification procedure to choose children for intensive interview, the selection being made on the basis of probability of childhood depression. This was done according to CDI scores. A pilot study using this instrument, comprising 66 children in hospital and 13 in a social services residential assessment unit had shown that the mean score on the shortened version of the CDI was 6.9 with a standard deviation (s.d.) of 4.0. Scores of nine (half a s.d. above the mean) were called 'high scorers' and of eight or below were 'low scorers' in this subsequent clinical survey.

Approximately half of the high scorers (49 of 100) and one-quarter of the low scorers (46 of 175) were selected randomly giving roughly equal numbers of high and low scorers. The ratio of cases chosen was based on the principle of over-sampling from that proportion of the population which had the potential for an excess of childhood depression. Provided that the sampling fraction for each stratum selected is known, over-sampling allows estimates for the total population. Each stratum can be weighted appropriately (Robins, 1980). The mean age of the selected sample was 12.5 years (s.d. 2.0); 27% were nine or ten years old; 26% were 11 or 12; 32% were 13 or 14 and 14% were 15 or 16. Of the cases, 48% were male and 52% were female.

The current research is confined to comparing and contrasting subgroups of children in consulting settings. There are no general population controls and this is relevant for the interpretations of findings. The review by Williams (1986) highlights this. Psychiatric morbidity in the community is largely undifferentiated (Goldberg & Huxley, 1980) and "diagnostic criteria derived from, and for, patients seen in specialist psychiatric practice, may incorporate thresholds which are inappropriate for non-specialist settings" (Dohrenwend *et al*, 1978, 1980; Williams, 1986). Thus, scales which may be reliable in samples from consulting practices may be much less so in general population samples. This has crucial relevance in our paper concerning screen measures as criteria for diagnosis.

Psychiatric interviews: reliability and agreement

Three senior and experienced research child psychiatri were involved in assessment of the children. As assessment of depression was largely based on clini assessment by the psychiatrists, their reliability w examined closely. Three different statistical techniques w used for this purpose, the kappa statistic, product–mom correlation coefficients and supplementation by analysis variance and intraclass correlation coefficients wh necessary.

Kappa is a statistic specifically developed to measure t interobserver reliability of categorical data and whi corrects for chance or expected agreement (Cohen, 196 The range of kappa is not necessarily the same as that a correlation coefficient and thus maximum kappas ha been calculated – the maximum values of agreement th can be attained in terms of the number of categories a frequency with which each rater or judge chooses th category (Cohen, 1960). Kappa was also used to measu agreement between schemas about the presence or absen of depression. As the cases were given overall ratings severity on a number of different dimensions of disord such as depression and anxiety, another form of correlati proved necessary. With the limitation of resources considered it more efficient to attempt to impro the agreement coefficients by examining ratings ma independently by all three raters on a small group children. For these purposes analysis of variance a intraclass correlation coefficients were performed. Intracla correlations provide essentially an average intercorrelatio

We have employed a number of different schemas to gi ratings of depression. It was decided that data and rating from the Standard Psychiatric Interview (SPI; Goldbe *et al*, 1970) should be the criterion for validating the oth measures – as it was always totally dependent on t observations and clinical judgements of the senior researc child psychiatrists, and clinical ratings were felt to be paramount importance. However, some may view this as a arbitrary decision and argue for the obverse, namely th the DSM–III (American Psychiatric Association, 198 diagnosis based on data gathered via the Kiddie–SAD interview (Chambers *et al*, 1985) should be the validatin criterion for the other measures (SPI; Goldberg *et al*, 197 Williams, 1986).

Measures used

The SPI

The SPI is a semistructured schedule designed to stud psychiatric disorder in adults in a community setting. It ha a number of precise probes as well as clear-cut definition of symptoms and can give ratings on a range of clinica disorders. For this research with pre-adolescents an adolescents, an unstructured introductory interview wa designed to precede the SPI. In addition, the interviewer (all senior research child psychiatrists) used phraseology an concepts appropriate to the child's cognitive level and stag of psychological development, thus accommodating th different abilities of children to give accounts abou emselves. Preliminary piloting indicated that, provided e interviews were conducted with flexibility and sensitivity, w problems emerged when using the SPI with prepubertal ildren and adolescents. The instrument rates symptoms cording to clinical judgements on a five-point severity ale. We used concepts and definitions of disorders more ually geared to adults, as outlined and defined in the SPI anual. This allows both clinical diagnosis of depression nd rating of severity of disorder.

The reliability of the data was checked by several bservers whose agreement coefficients were pooled sing the Spearman–Brown prophesy formula (Hartmann, 977). Interviews on nine children were undertaken y a single interviewer (SB) and observed by video cording by two independent raters (TB & IK). Diagnoses of presence or absence of clinical depression and nxiety were made with the intention of undertaking atistical analysis for categorical data (Cohen, 1960). owever, there were no discrepancies in diagnosis, which probably a reflection of the similar training, concepts nd symptom definition of the three raters.

Such categorical agreement does not necessarily provide nformation about the extent of agreement of severity on he dimensional scores of symptoms or on ratings of overall epression and anxiety. However, when the correlations f the interviewer ratings were pooled, an interobserver eliability of greater than 0.9 was found for overall severity f depression and anxiety disorder. The correlation oefficients on the 12 symptoms were lower, with the lowest greements being on fatigue (0.75), irritability (0.84) and hobias (0.84). When applying the Spearman–Brown rophesy formula, these pooled correlations rise substantially. However, when using product–moment correlation coefficients, rater scores can differ by a constant across ratees and not be reflected in the coefficient. Hence, we also used intraclass correlation coefficients that take into account systematic error, which can serve to lower coefficients (Winer, 1971).

Analysis of variance revealed highly significant differences between ratees but not between raters. Intraclass correlation coefficients proved to be of a similar order to those obtained with the Spearman–Brown formula on ratings of depressive and anxiety disorders (0.96 and 0.92 respectively). It was concluded that the SPI appropriately modified and administered by experienced child psychiatrists, had satisfactory reliability in the assessment of the degree of overall depression, overall anxiety and associated symptoms in both the prepubertal period and adolescence.

The Kiddie-SADS

This is a commonly used and validated schedule in assessing depression in children. It is essentially a modification of the Schedule for Affective Disorders and Schizophrenia (Spitzer *et al*, 1978) that has been employed with children between 6 and 17 years of age by Puig-Antich and colleagues (Orvaschel *et al*, 1982; Chambers *et al*, 1985). It is a reliable instrument for measuring symptoms of depression and conduct disorder, although ratings of anxiety disorder have not been so consistent (Chambers *et al*, 1985). The recommended procedure is for the parents to be interviewed, then the child; the child interview is guided by information from the parent. The examiner is required to make a clinical judgement of the presence or absence of the symptom under inquiry and, if present, its severity. The mode of onset and duration of symptoms contribute to ratings of severity. The rating is a synthesis of all the information available on the child and provides the basis for the diagnosis. A wide range of symptoms are covered and all have been found to be assessed with acceptable reliability, except for pathological guilt and impaired concentration (Chambers *et al*, 1985).

Although the Kiddie-SADS was felt to be a very suitable instrument for assessing childhood depression, an important modification of the procedure was effected in the Newcastle study. Interviewing of parent and child by different interviewers was carried out, thus avoiding a halo effect in the rating of symptoms. Independent ratings of the severity of depression as reported by the child (by consultant) or parent only (by senior research fellow) were followed by separate ratings of clinical disorder.

Other modifications included the addition of a small number of symptoms using a format of probes and scales similar to that in the original. These included paradoxical aggression, i.e. aggression which manifests itself in the home only, boredom, a sense of being unloved, a feeling of emptiness, self-dislike, exaggerated illness behaviour and *déjà/jamais vu*. Further, in our study, a four-point severity scale was used in place of the seven-points in the original. Such a four-point scale can be converted easily from an original one reflecting severity, to a dichotomous one, reflecting significant presence or absence of symptoms; this is an important point, as discussed later. These two sets of data based on child and parent interviews were the basis of the analyses of an accompanying paper (Barrett *et al*, 1991).

The Newcastle Instrument

Our research group has also developed a brief set of key diagnostic criteria for depression (Kolvin *et al*, 1984, 1989). They differ from the criteria advanced by the North American research groups (Weinberg *et al*, 1973; Puig-Antich, 1980), but bear greater similarity to the Puig-Antich schema than the Weinberg variation. Ratings of symptoms are scored as an ordinal scale to reflect severity (1, 2, 3, 4) but this can be recoded as a binary scale (0, 0, 1, 1). Previously, it was found that the best cut was at six or over (summed scores) on the binary scale. To achieve a diagnosis of depression and to allow evidence of severity of overall depression, a symptom algorithm was employed consisting of a score of six or more on the binary scale being severe depression and five, moderate depression (Kolvin *et al*, 1984). These cuts were originally developed to discriminate between school phobics who were depressed and those who were not.

The Weinberg schema of criteria for diagnosis

Weinberg *et al* (1973) have offered a list of primary and secondary symptoms based on the criteria for diagnosis of depression in adulthood (Feighner *et al*, 1972). To be diagnosed as depressed, children must have the primary symptoms of dysphoric mood and self-deprecation plus two more of a further eight symptoms. There are no guidelines as to the duration and severity of disturbances. Hence, a decision was made to allow for severity by scoring and recoding the Weinberg criteria in the same way as the Newcastle criteria. Similar operational decisions were made to score severe and moderate degrees of depression and an appropriate symptom algorithm was applied.

Evaluation of other symptoms

Depression in childhood may be a homogeneous entity although the evidence from adult psychiatry suggests that, apart from psychotic depression, the remaining depressive states are heterogeneous (Goldberg, 1983). To determine how far other symptoms and disorders were associated with depression, ratings were made for associated clinical disorders of sufficient severity to be given a diagnostic label in their own right. Patients were therefore given ratings on three dimensions of disorder, based entirely on the presence of the defined symptoms and irrespective of any other ratings.

(a) *Neurotic disorder*: symptoms of significant anxiety, sensitivity, obsessive–compulsive phenomena, somatic symptoms, hypochondriasis or hysteria. The disorder, as defined here, overlaps broadly with category 300 of the ICD–9 (Rutter *et al*, 1975). This system has been used extensively in the past and the reliability of ratings established elsewhere (Kolvin *et al*, 1984; Wrate *et al*, 1985). The subcategories are not listed, but neurotic disorder overall is rated according to severity on a four-point scale. Ratings are based on clinical judgement where four indicates marked disorder, three represents moderate severity, two denotes dubious presence and one indicates no evidence of disorder. A score of three is taken to represent neurotic disorder at a clinical level irrespective of any other diagnosis. A score of two represents subclinical symptoms.

(b) *Conduct disorder*: a combination of lying, stealing, truanting, poor interpersonal relationships and various types of antisocial behaviour including aggression. The disorder, as defined here, overlaps broadly with category 312 of the ICD–9. Severity ratings were made according to the clinician's judgement, using the convention and scale described above. The clinical scale takes into consideration frequency, severity and duration of behaviour.

(c) *Phobic disorder*: symptoms of irrational fears of situations or people, accompanied by avoidance and a sense of social handicap. It includes school phobia. This overlaps broadly with category 300.2 of the ICD–9. Ratings of severity were made according to the clinician's judgement and scored as above.

Sequence of interviews and scoring of measures

The shortened version of the CDI was administered first; on the basis of their scores the children were interviewed by a senior psychiatrist who had no knowledge of the results of the screening. The parent interview (Kiddie–SADS) was always administered by one of the research fellows. This was usually undertaken simultaneously with, but independent of the child interview. The child was interviewed using t SPI followed by the Kiddie–SADS; these schedules we either administered in sequence on the same day or with 48 hours of each other. It had been intended that the S and the child Kiddie–SADS be given independently, t latter by the second research fellow or another seni psychiatrist, but a lack of staff time prevented t implementation of this intention in every case, and about one-fifth of the cases the senior psychiatrist fi administered the SPI and then the Kiddie–SADS. On t basis of the information contained in these extended Kiddi SADS schedules, 'symptom' diagnoses of neurotic, condu and phobic disorders, and their severity, were made. I addition, the extended Kiddie–SADS schedule was subject to algorithms relating to defined symptoms listed in t Weinberg (Weinberg *et al*, 1973) and Newcastle (Kolvin *al*, 1984) schemas, and this allowed relevant 'sympton diagnoses to be achieved. In the case of the Weinberg, d allowance was made for severity of defined symptoms

Following Puig-Antich (Chambers *et al*, 1985), maj depressive episodes were defined as periods of dysphor mood or of pervasive loss of interest or pleasure and we categorised as major, if relatively discrete and associate with the defined number of symptoms of the depressiv syndrome. The detailed definition and criteria were thos applicable to DSM–III diagnostic categories of either maj depression, single episode or recurrent episode. Th annotated child Kiddie–SADS protocols were later reviewe blindly by a research fellow who made a diagnosis o depression and ratings of severity based on Kiddie–SAD data. The categories and ratings that emerged were use to check agreement between schemas.

On the SPI, categorisation and ratings of severity o depressive disorder were made by the senior psychiatrist and these were used for calculating rates of depression i the total sample, and also to check agreement with othe schemas. Composite ratings of severity of clinical disorde and diagnosis were established by one of the senio psychiatrists (IK, TB and SB) based on a synthesis of al the information, but these ratings have been little used

Results

The estimated prevalence of depression in the out-patient sample, based on direct clinical assessment utilising the SPI was found to be 35.3%. Clinical depression was subdivided into marked or severe depression, and moderate depression. Marked or severe depression was present in a quarter of the total sample irrespective of whether the proportions were based on direct assessment using the SPI (26%), case-note review applying DSM–III criteria (25%), the Newcastle symptom algorithm (25%), or the Weinberg criteria (23%). However, the rates for moderate depression varied. The Newcastle formula, when there were five inclusion criteria, including dysphoric mood, gave a rate of 18%. The percentage when using DSM–III was 21%, which was similar – again probably reflecting decisions about severity of inclusion criteria. The rate based on the SPI proved intermediate at 9% – this was considered the most accurate of our methods as it was based on both direct assessment d clinical judgement which allowed finer discrimination the five-point scale. Finally, as our earlier decisions on e Weinberg about the inclusion criteria for moderate levels f depression proved rather rigorous, few patients entered is intermediate category.

The next step was the comparison of the main instruments ed in our study – the Kiddie–SADS (as a basis for interviewing) and DSM-III (for diagnosis), the Weinberg criteria nd the Newcastle scale – were compared. This was to deterine the relationship between different ways of categorising epression as compared with the SPI. Although kappa cores were moderate, intraclass correlations for all three easures were satisfactory and this indicates acceptable greement. A comparison of agreement between these same ree scales also showed satisfactory intraclass correlation oefficients (Table 1).

While depression was present in over one-third of the ample, it presented alone in only 11.2%. It should also e noted that the rates were marginally lower when iagnosis was based on clinical judgement using one source f information, namely the SPI (Goldberg *et al*, 1970). They re higher when a more detailed and intensive interview is sed and are highest when they include information from wo interview sources, namely the child and the mother. This is generally to be expected: the greater the information, he less symptoms of depression will be missed. The revalence of depression was higher in in-patients than outatients. Our estimated rates of depression of about one n three do not necessarily represent a main diagnosis and here is considerable overlap – for example one-sixth of the linical sample proved phobic, one-third had a conduct isorder, and half had a neurotic disorder.

Examination of our data (Table 2) suggests possible explanations which could account for the high rates of depression in our clinic population. It would seem that a simple categorisation into any major category of child psychiatric disorder merely obscures the picture. Where the main diagnosis is of a conduct or phobic disorder, we may overlook a significant associated depressive disorder. Thus, about one-sixth of our patient population have a phobic disorder and of these about two-thirds are depressed; about one-tenth of our out-patient group are depressed and phobic. In contrast, one-third of our clinical population have a conduct disorder but only one-fifth of these are also depressed – thus one-in-four of the clinical sample have a conduct disorder without depression. Finally about half of the out-patient population have neurotic disorders and one-third of these are depressed; put another way, one in six have a neurotic disorder without depression. An alternative perspective is that about one-third of the depressed group are phobic, half have a neurotic disorder, and one-fifth, a conduct disorder.

Age and sex trends

One crucial theme is the analysis of the data to display age and sex trends. The sample size was too small for any fine-grain analysis, so the new out-patient group of cases was dichotomised at about the mean (12 years or less and 13 years or more) and according to sex. Only about a fifth (18%) of younger girls proved depressed but more than three times as many (68%) of the older group were. In contrast, two-fifths (39%) of the younger boys were depressed but in the older group this rate reduces by half (19%). These sex ratios roughly replicate those reported by Rutter (1986; based on Pearce's 1974 data). Pearce emphasises that the differences are likely to be in relation to sexual maturity rather than chronological age. Therefore we checked the dichotomy according to chronological age against our clinical assessments of puberty and found that age and pubertal stage were not in agreement in over one in five boys (22.7%) and about one in six girls (14.9%). Re-analysis of the data according to whether the cases were prepubertal or pubertal gave rise to a modest variation of the proportions of depression – 42% of prepubertal males compared with 30% of females, and 27% of pubertal males as opposed to 66% of females. These data are consistent with the notion that there is a shift in the sex ratio of depressed children from a male preponderance before puberty to a female preponderance after puberty (Rutter, 1986).

Discussion of rating scale results

Several authors have previously distinguished between symptoms and syndromes of depression in childhood and have asserted that they are not synonymous; sadness does not necessarily constitute depression (Hamilton, 1982; Kolvin *et al*, 1984).

Table 1
Diagnostic schemas

	Raw kappa values	Maximum kappa values	Intraclass correlation
Validation against SPI			
DSM-III	0.45	0.92	0.64
'Weinberg'	0.56	0.77	0.64
Newcastle (Kolvin *et al*)	0.55	0.94	0.63
Comparison			
DSM-III v. 'Weinberg'	0.50	0.75	0.71
DSM-III v. Newcastle	0.57	1.00	0.76
Newcastle v. 'Weinberg'	0.56	0.77	0.66

Table 2
Co-morbidity in a clinic sample with depression and associated disorders[1]

Associated disorder	Total: %	Plus depression: %	Minus depression: %	Depression minus the associated disorder[2]: %
Phobia	17.7	11.2	6.5	24.3
Neurotic	49.5	15.9	33.6	19.6
Conduct	31.6	6.5	25.2	29.0

1. Estimates of rates in total clinical sample based on calculation from proportions in stratified sample.
2. Column four represents the rate of depression where the listed associated disorder is excluded – for example depression without phobia

However, while dysphoria is commonly viewed as a necessary characteristic of depression, it is not a sufficient criterion in itself. Our data suggest a variety of ways in which childhood depressive syndromes overlap with other childhood syndromes.

Technically, although at times we have described the different conditions that we have identified as 'disorders', it is more appropriate to view them as 'syndromes'. Carlson & Cantwell (1980*b*) take this one stage further by indicating that, to achieve the status of depressive disorders, such syndromes need to be distinguished from other disorders by differences in family factors, family patterns of illness, natural history, biological factors and response to treatment. Nurcombe *et al* (1989), tried to deal with the confusion regarding the concept of depression – pointing out that the term may be used to refer to a symptom of affect or mood, a syndrome cluster of depressive symptoms, a disorder reflecting a category of individuals with a depressive syndrome, or a disease consisting of a disorder which is physiologically or biologically based. Much current research is aimed at identifying clear depressive syndromes (Ryan *et al*, 1987; Seifer *et al*, 1989).

It is clear that, once the severity of diagnostic symptoms is taken into account, agreement between diagnostic schemas is substantial and, further, all are found to be equally valid in relation to an independent clinical criterion. This is of particular relevance to the Weinberg criteria, which previously did not take account of severity and consequently gave rise to rather high rates of depression in a learning-disorder population (Weinberg *et al*, 1973). Cantwell (1983) reports only moderate agreement between different sets of diagnostic criteria and our findings, on the surface, seem to support this. However, the same diagnostic criteria can be used to achieve quantitative variations in relation to qualitatively distinct disorders (Rutter, 1986). When the different diagnostic schemas were treated in this way and the emergent dimensions were compared using intraclass correlation coefficients, the agreements proved much more satisfactory. Data were not available for checking the reliability of the diagnoses of depression or the dimensional ratings except for the clinical SPI, which proved to have satisfactory reliability.

The association of depression with other psychiatric conditions

Mixed depression is a well known phenomenon in adult psychiatry; witness the affective basis of some phobic and obsessional states. In children also, as Rutter (1988) points out, it is not uncommon for depression to be associated with other psychiatric conditions. For instance, Puig-Antich & Gittelma (1982) reported that one-third of boys fitting researc diagnostic criteria for major depressive disorde could also be diagnosed as conduct disordered, usin DSM-III criteria; Hendren (1983) found that mo than half of patients with anorexia nervosa also hav depression, using these same criteria. Carlson Cantwell (1980*b*) determined that 50% of childre in their clinic survey presenting with affectiv disorder had another diagnosis with hyperactivit (25%) and anorexia (11%) proving most frequent

The above evidence suggests a similarity betwee depression in children and that in older peopl (although the association with conduct disorder an hyperactivity may be seen as age-specific). A extension of this view would be that depressio underlies the other disorder with which it i associated but that, once treated, both disorders wi improve. This is a known scenario in adults, but th only evidence for this in children is the study by Puig Antich (1982) of major depression in prepuberta boys. One-third of these also met the DSM-II criteria for conduct disorder and, of those 13 wh had mixed disorder, 11 lost both disorders o appropriate antidepressant treatment. In a subsequent study, Puig-Antich *et al* (1985) found tha four months after the depressive features had cleare with antidepressant treatment, residual symptom remained. Similarly, Berney *et al* (1981) found tha school-phobic children with associated depressio (according to the Newcastle criteria) experienced rapid relief of their depressive symptoms with treatment, but showed considerable persistent residual neurotic disturbance. An alternative interpretation of the overlap is that mixed depression is the independent association of two separate disorders mostly with distinct aetiologies and outcomes. The degree of relatedness presumably varies with the type of associated disorder, being higher for neurotic/phobic disorders, and lower for conduct disorder, despite the results described by Puig-Antich (1982).

Adult/child links

The association between psychiatric illness in childhood and later adult illness is not close (Robins & Hill, 1966). However, Zeitlin (1986) has shown that in some individuals, depression in childhood is followed by adult depression. He investigated a group who had been under psychiatric care at the Maudsley Hospital in London, both as children and as adults. Zeitlin examined two control groups: one of children who had not re-attended as adults, and one of adults whose disorders had begun in adult life. He reported that much adult depression was not eceded by any childhood disorder. Further, of iose adults who had attended as children, only a nall proportion had predominantly depressive isorders. In addition, of the children diagnosed as epressive using clearly stipulated criteria, most were ot diagnosed as suffering from depression in dulthood. However, in a small number of cases here the diagnosis of depression was made on the asis of specified criteria in both childhood and dulthood, strong continuities between the child and dult group were found. It may have been that many f the depressed adults had presented with other ymptoms in childhood and were not recognised as epressive.

lasked depression

he theme of one disorder masking or concealing nother is not new in child psychiatry, and dates rom the theories and studies of Cytryn & McKnew 1972), Cytryn *et al* (1980) and Glaser (1968). It vould appear that these authors were correct in uggesting that depression was often hidden, but they oncluded, erroneously, that depressive symptoms nanifested in a different way.

Our findings suggest that depression is simply undetected because of inadequate techniques of clinical assessment. Other workers have demonstrated that children with so-called 'masked' depressive disorders (Rutter, 1988) do show overt depression (Carlson & Cantwell, 1980*a,b*). On the other hand, some research suggests that the clinical features of depression may be modified or may be more primitive in younger children (McConville *et al*, 1973; Zeitlin, 1986). This current work underlines the importance of assessing depression accurately, regardless of the presenting complaint. All associated symptoms should be recorded and as long as each syndrome is not viewed as discrete from disorders reflecting other psychiatric and behavioural difficulties, it should be easier to understand.

Rates of depression in child psychiatric populations vary widely. Weinberg *et al* (1973) reported that 57% of children aged 6–12 attending an educational diagnostic clinic had a depressive disorder. Petti (1978) using modified Weinberg criteria diagnosed depressive disorder in about 60% of in-patients. Lower rates (27%) were reported by Hudgens (1974) in adolescent in-patients and Kovacs (1977) found only 14% of clinic patients to be depressed. Carlson & Cantwell (1980*a*) reported 28% of the interview sample of 102 children attending the UCLA Neuropsychiatric Clinic had a clinically diagnosed depressive disorder and 49% a 'cross-sectional depressive syndrome'. The variation in rates is likely to reflect the concept of depression employed and definition of criteria and also the nature of the clinical sample studied. In our study, depressions diagnosed by the SPI are likely to represent a disorder, whereas those identified by other instruments or by symptom algorithms should be seen as syndromes, with a consequently higher prevalence (Carlson & Cantwell, 1980*a*). The relatively high frequency of depression found in our sample was likely in part to reflect the severity of disturbance in cases referred to a university-based consulting clinic. We do not believe that we have overdiagnosed depression in our sample, although this is a possibility in any study where a particular disorder is being sought for in detail. It is more likely that there has been underdiagnosis in those studies where co-morbidity has been overlooked. This being said, because of the selection factors operating in referral to our clinic, it is not relevant to extrapolate rates of depression found in our study to the general child population.

Clinical and multivariate approaches

In the United Kingdom, multivariate exploration of adult depression was pioneered by the Newcastle School of Psychiatry (Kiloh & Garside, 1963; Carney *et al*, 1965). The use of these adult diagnostic criteria for describing depressive disorders in school-age children and adolescents has been promoted in the UK by the work of Berney *et al* (1981), Kolvin *et al* (1984) and this current research. In the USA, Puig-Antich & Chambers (1978) have been the main architects with the development of semistructured interview assessments. These latter developments have facilitated multivariate approaches to classification of childhood depression.

In this section we describe principal component and cluster analysis on all children and adolescents on whom full Kiddie–SADS data were available.

Method

In exploratory factor analysis it is hypothesised that a set of variates exist which substantially account for any interrelationships (Maxwell, 1977) Thus, theoretically, exploratory factor analysis is capable of identifying symptoms (and perhaps other features) which hang together in characteristic patterns; this view is consistent with the hypothesis that there is one general factor underlying all the symptoms, as well as additional differentiating or bipolar factors. Varimax rotation may be of help in identifying those symptoms which are especially related to each other, but in the process their variances may be greatly inflated by error (Maxwell, 1977).

Principal component analysis (PCA) is a widely used technique for exploring a covariance structure. Hopefully the derived components will represent more basic variability in the data than in the observed variates (Maxwell, 1977). Where PCA is used as an alternative to exploratory factor analysis, the first few rotated components "often give a robust identification of major trends in the data" (Taylor, 1979). The mathematical basis of the PCA approach makes it a useful technique in non-standard situations "where the data may not fit classical assumptions of multinormality" (Taylor, 1979).

Many of the qualifications about factor analysis, especially those relating to multinormality, do not apply in the case of PCA, which therefore appears to be a more robust technique for analysing clinical data. (As much of the data collected in this research was found to not always conform to the conditions defined above, PCA was chosen in preference to factor analysis.)

The purpose of cluster analysis is to identify those subsets of features or individuals which cluster together, i.e. have much in common within each cluster, but little in common between the clusters (Aldenderfer & Blashfield, 1984). These methods not only summarise relationships between features, but may also highlight new sets of harmonies or structures (Cattel, 1965; Garside & Roth, 1978).

Cluster analysis theoretically appears to be the most useful way of identifying relatively homogeneous subsets of individuals, the validity and number of clusters identified are still open to debate. For instance, questions arise about how to establish the validity of the clusters generated: not only may differences emerge using different programs of cluster analysis on the same population of patients, but different results are often obtained from a study of different samples of patients with the same diagnosis.

However, the multivariate techniques are not a classification panacea. The results of factor analysis and PCA may be considerably influenced by changes either in the size or composition of the subject sample, or in the range of measures employed (Kendell, 1968, 1975). Another well known limitation when using factor analysis for classification purposes is that in practice only a minority of patients may be accommodated by the emergent classification (Hewitt & Jenkins, 1946).

Provided that the pitfalls are constantly borne in mind, these techniques usefully complement the traditional clinical methods of identifying syndromes. Multivariate techniques can either provide powerful statistical evidence in support of an already conceptualised classification or suggest new ways of categorising behaviour or classifying individuals.

In selecting items for multivariate analysis, the criteria defined by Ryan *et al* (1987) were followed. To avoid the confusing effects of unreliability and lack of variance, only those items from the Kiddie–SADS were included for which there were both test–retest reliability coefficients above 0.50 and a good range of scores for the sample population tested. However, some additional items which we thought merited consideration on theoretical grounds were also included. In all, 22 items were selected which overlapped extensively but not completely with the 22 items included by Ryan *et al* in their analysis. This constitutes the *first set*: within this, three parallel subsets of data were examined, the first deriving from parent interview, the second from chil interview and the third consisting of summed data derive from parent and child interviews. A *second set* of data wa established in which school refusal, and aggression confine to the home were included instead of the final two item in set one listed in Table 3.

PCA with varimax rotation was undertaken an components were retained following the two criteria: a eigenvalue greater than one; and having at least thre variables that loaded significantly on it. This gave rise t a smaller number of components than selected by Ryan *e al* (1987) for their larger patient population.

Clusters were identified using Ward's (1963) method: i this the coefficients are of the dissimilarity type, wit iterative relocation with hierarchic fusion. The method tend to derive clusters of relatively equal sizes. Cluster number are determined by examining the fusion coefficients fo sharp changes in their values, the number of clusters befor these sharp changes being accepted as the most probabl solution (Aldenderfer & Blashfield, 1984). Some view thes changes as rather subjective and hence other methods hav been advocated, such as, the procedure developed by Mojena (1977) in an attempt to obtain a better definitio of a significant jump. However, most procedures have to be checked for validity, and clusters need to be judged in terms of interpretability and predictive ability (Everitt, 1977).

Clusters found by Ward's method can be ordered in terms of their overall organisation, that is, the elevation of their profile, which determines the selection of the clusters.

Principal-component analyses

Each of the three PCAs of set one produced four similar clinically interpretable components. Together these accounted for 58% of the variance using child interview data; 53% using mother interview data; and 60% using combined data.

The four comprised:

(a) depressed, anhedonia, increased fatigue, psychomotor retardation component which is similar to an adult endogenous-type depression factor
(b) negative cognitions component accompanied by thoughts of suicide
(c) anxiety
(d) anger–agitation component.

On all three analyses the loadings of three of the four identified components overlapped substantially with those described by Ryan *et al* (1987) (see Table 3). On the negative cognitions component using child data, the overlap was in the order of five of the five variables; with parent data three of five; and with combined data five of five. With the endogenous component using child data, the overlap of such loadings is four of the nine variables, with parent data it is five of nine; with combined data it is six of the nine. However, on the anxiety component the overlap of loadings using child data is only one of the seven; with parents two of seven; and with combined data it is only two of the seven. In contrast to Ryan, neither an appetite–weight nor conduct components

Table 3
Principal component analysis derivation of the main components with symptom loadings set one (with three subsets)

	Components child data				Components parent data				Components both			
	C1	C2	C3	C4	C1	C2	C3	C4	C1	C2	C3	C4
Anhedonia		66X			77X					72		
Self-denigration	72X					85X			76X			
Hopelessness	63X					64X			69X			
Guilt	48			59	59	63			60			
Withdrawal	48	52X								69X		
Dysphoric mood	61X	58X							58X	66X		
Brooding	58X		49			52			72X			
Diurnal variation												
Terminal insomnia					63X					54X		
Loss of appetite		80X			77X					72X		
Lack of energy		63X			82X					82X		
Irritability		47		48			83X		49			47X
Suicidal ideation	69X					53X	43X		80X			
Somatic complaints		47		42						61		
Slowing thoughts	53				51X					59		
Sense of failure	83					79			76			
Separation anxiety			83X					81X			84X	
Conduct problems			−41		−50						−46	
Anxiety			71					55X	41		66X	
Fear			67					83			82	
Anger	55			40			74X		44			67X
Agitation				75								77X
Eigenvalue	8.2	1.6	1.8	1.4	5.8	2.3	1.8	1.6	8.0	2 2	1.8	1 3
Proportion variance	37 4	7.4	7.1	6.2	26.4	10.7	8.1	7.4	36.4	9.9	8.0	6.1
Interpretation	Negative cognition	Endogenous type	Anxiety	Anger–agitation	Endogenous type	Negative cognition	Anger–agitation	Anxiety	Negative cognition	Endogenous type	Anxiety	Anger–agitation irritation

X represents 'overlap' with loadings reported by Ryan *et al* (1987) For purposes of presentation, loadings below 40 have been excluded.

were identified. However, on all three analyses an anger–irritability component emerged.

An important finding is that the stuctures of both the negative cognitions and endogenous component differed according to whether the data was derived from child or parent. Notably the item dysphoric mood did not load highly on the parent-derived negative cognitions component. On the endogenous component based on parent interview data, dysphoric mood, somatic complaints and social withdrawal do not load highly; on the child-derived endogenous component, insomnia and slowing of thoughts do not load highly.

In the circumstances, a better definition of the major components probably emerges from the analysis of the combined data. The endogenous components consist of: anhedonia; lack of energy; loss of appetite; withdrawal; dysphoric mood; somatic complaints; slowing of thoughts; terminal insomnia. The negative cognitions components consist of: self-denigration and sense of failure and hopelessness; brooding/worrying, guilt; dysphoric mood; suicidal ideation; irritability; anxiety and anger.

In the separate analysis of the data (set two), school refusal and aggression confined to the home were included and again in relation to the parallel subsets. Again, on all three analyses, three of the identified components overlap substantially with those described by Ryan *et al* (1987) but the fourth did not prove to be clinically meaningful. The pattern of loadings in the other three were broadly similar to those described in set one. However, when employing child-interview data or combined data, poor school attendance loaded highly on the endogenous component, but only moderately on the anxiety component. The conclusion must be that changing the data set gives rise to some important variations.

Cluster analysis

The same two data sets, with the data standardised, were subject to cluster analyses which were repeated for child data, parent data and combinations of the data. In the first set, irrespective of whether child, parent or combined data was employed, three broad clusters emerged. The numbers of

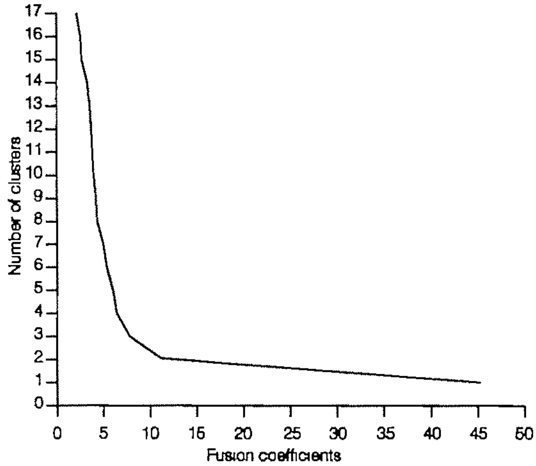

Fig. 1 Number of clusters using child, parent or combined data v. fusion coefficients.

Table 4
Comparison of clinical and cluster diagnoses based on selected items from standardised psychiatric interview (SPI)

	Cluster diagnosis			
	Depression	Severe depression plus 'masquerade' symptoms	Mixed maladjustment cluster	Total
Clinical diagnosis based on SPI				
Neither anxious nor depressed	0 0%	0 0%	21 100%	21
Anxiety category	2 8%	1 4%	22 88%	25
Depression with or without anxiety	16 35%	20 43%	10 22%	46
Total	18 20%	21 23%	53 58%	92

clusters were plotted against the fusion coefficients (Fig. 1). It is noted that the flattening to the curve begins at the three-cluster point suggesting three clusters are present in the data. The clusters consisted of negative cognitions, endogenous depression and an amalgam of conduct–neurotic–anxiety features. The latter was always the largest cluster and included 42 children when using child data, 44 children when using parent data and 51 when employing combined data. The negative cognitions cluster ranged from 22 children when using child data to 30 children when analysing parent data, reducing to 29 when using combined data. The structure of these clusters varied according to whether the data derived from the children or parents, and while a negative-cognition cluster was easily recognised when analysing combined data there was only an overlap of five out of 11 items when analysing parent data, as compared to the picture that emerged when analysing child data. The endogenous cluster gave eight identifying peaks from child data and six of these re-emerged when using the parent data. However, the endogenous cluster consisted of 30 children when using child data; reducing to 17 with parent data and 10 with combined data.

On the analysis of set two, the picture that emerges is not highly consistent. Cluster analysis deriving from child data gives rise to an endogenous cluster, a mixed conduct–anxiety cluster, and finally, a mixed endogenous negative cognition and school refusal cluster. With the parent data the syndromes that emerge are more distinct and circumscribed: an endogenous cluster which includes school refusal, negative cognitions, and again a mixed conduct neurotic anxiety cluster. On this occasion, the endogenous cluster consisted of 22 children when using child data, and 30 children when using parent data, reducing to only 14 children when using combined data.

Again, when using combined child–parent data, clear distinctions emerge. Three clusters are obtained: depressive cognitions, endogenous depression, and mixed conduct disturbance/neurotic disorder. Depressive cognitions consists of self-denigration, hopelessness and guilt, irritability, suicide and a sense of anxiety, fear and anger. The endogenous depression cluster is represented by anhedonia, hopelessness, withdrawal, dysphoric mood and worrying, insomnia, loss of appetite, lack of energy, suicidal ideation, somatic complaints, slowing of thought, anxiety and school refusal. Finally, the mixed conduct disturbance neurotic disorder cluster consists of diurnal variation of mood, insomnia, loss of appetite, somatic complaints, separation anxiety, conduct problems, fear, paradoxical aggression, and to a lesser degree, school refusal.

A fundamental question is the extent to which clinical and cluster diagnoses agree. Such comparisons proved feasible as we had previously undertaken cluster analysis of data derived from the SPI which gave rise to three clusters of 'depression', severe depression plus 'masquerade' symptoms and a mixed-maladjustment cluster (Kolvin *et al*, 1989). The cases were located in these three cluster categories. This was complemented by clinical categorisation of the cases based (again) on the SPI technique. The clinical groupings employed were maladjustment unassociated with anxiety or depression, anxiety without depression, and depression with or without anxiety (Table 4). The clinical category of maladjustment without major anxiety or depression did not overlap with the cluster categories of depression. Nor does the clinical category of pure anxiety overlap very much with the depressive clusters. But about four in five of those clinically diagnosed as depressed fall into the two cluster categories of depression. The same data can be reorganised to show a surprisingly tight fit between clinical diagnosis of depression and cluster diagnosis.

The next stage consisted of a comparison of clinical categories based on the SPI interview and allocation of cases into categories based on cluster diagnosis using data from the Kiddie–SADS interview. The clusters were derived from the reduced Kiddie–SADS list (Ryan *et al*, 1987). The picture proved similar (Table 5). There is a reasonably tight fit

Table 5
Comparison of clinical diagnosis (SPI) and cluster diagnosis using data from the Kiddle-SADS

	Cluster diagnosis			
	Endo-genous	Negative cognitions	Remainder	Total
Clinical diagnosis				
Neither anxious nor depressed	2 (8%)	0 (0%)	19 (80%)	21
Anxiety category	3 (11%)	4 (15%)	20 (64%)	27
Depression without anxiety	7 (50%)	5 (36%)	2 (14%)	14
Depression with anxiety	10 (30%)	21 (63%)	2 (6%)	33
Total	22	30	43	95

between clinical diagnosis based on SPI interview and cluster diagnosis using the Kiddie-SADS data which constitutes factorial validation of the SPI assessments.

Finally, the identified clusters were checked with the diagnosis derived from the Newcastle schema (Berney *et al*, 1981; Kolvin *et al*, 1984), and again the fit was reasonably close, which provides factorial validation of this schema.

Age and sex analyses

The sample size was too small for partitioning to allow an examination of the structure of the principal components for groups of boys as compared with girls, and younger as compared with older children. However, it was possible to submit the emergent cluster groups to simple statistical analysis – we confined ourselves to the cluster analysis of the Kiddie-SADS data from child interview.

The 'endogenous' cluster consisted of 45% boys and 55% girls; the negative cognitions cluster of 33% boys and 66% girls; while the residual maladjustment cluster showed a reversal of this pattern with 59% boys and 41% girls. Although boys and girls had the same mean age (12.0 years) in the residual maladjustment group, girls were older in the two depressive subclusters with a mean age of 13.9 in girls as opposed to 12.4 years in boys in the endogenous group; and 13.0 as to 11.8 in the negative cognitions group.

Discussion of the multivariate results

Ryan *et al* (1987) in Pittsburgh undertook PCA of psychiatric symptoms on 296 children and adolescents aged six to 18 years. In terms of simple demographic data his sample was broadly similar to ours. The meaningful components that emerged proved similar for both children and adolescents and included 'endogenous' and 'anxious' factors found in many studies of adult depression. Three others were 'negative cognitions'; 'appetite-weight changes'; and a 'conduct' factor. The five components accounted for 55% of the variance.

In the current Newcastle research, similar component structures were identified consisting of negative cognitions/suicide; a depressed/anhedonic retardation component; an anxiety component; and anger/agitation and irritability. The four components that emerge in the Newcastle research overlapped with only three of the five components which emerged in the Pittsburgh research. Further, the Newcastle data did not generate a conduct component but rather an anger-agitation-irritability one. The loadings on the Pittsburgh components were examined to ascertain any similarities to the components identified in the Newcastle research.

The endogenous component overlapped on five items – anhedonia, fatigue, psychomotor retardation, depressed mood, anorexia – but in Newcastle three additional items had high loadings – insomnia, somatic complaints and anger-irritability. These similarities proved true (with some minor variations) irrespective of whether the mother or the child was the informant.

The negative cognitions component overlapped almost completely on negative self-image, sense of hopelessness, suicidal ideation and brooding (worrying), again irrespective of whether the mother or the child was the informant. The association between hopelessness and suicidal behaviour parallels the findings on Pittsburgh with their younger population and also the findings in adults by Beck *et al* (1975). It may be that our series was not old enough to allow an association to emerge of impulsiveness, irritability and antisocial behaviour, as it did in Pittsburgh (Ryan *et al*, 1987). The other factors did not emerge in Newcastle.

It is notable how the loadings on the components from the child and the mother in the Newcastle work paralleled the two main Pittsburgh factors. It must be concluded that the variations produced by separating out the mother from the child data do not give rise to fundamental component differences.

The first two components found in the Pittsburgh and Newcastle studies resembled those reported in a review of studies of adult depression (Nelson & Charney, 1981). The smaller size of the Newcastle sample did not allow separate analysis of pre- and post-pubertal groups.

The largest cluster consists of largely non-depressed individuals and can be broadly described as a category of mixed maladjustment; there is a moderate-sized group with negative cognitions and a smaller cluster of children with endogenous depression associated with school refusal. It is not surprising, in an analysis of the elements that make up depression, that the two themes of depressive cognitions and endogenous depression appear as separate clusters when cluster analysis is applied.

It is notable that when the final two items of the data subset are replaced by aggression within the home (which we have described as paradoxical) and school refusal, the structure of the cluster analysis changes. While the depressive cognition cluster overlaps moderately in the two analyses, the overlap is much more extensive in the endogenous cluster and covers anhedonia, hopelessness, withdrawal, dysphoric mood, terminal insomnia, loss of appetite, lack of energy, somatic complaints, slowing of thoughts and anxiety.

While PCA highlights components, these are not easily convertible into syndromes represented by a subgroup of individuals. Some of these components only account for a small proportion of the variance and it is not to be expected that they will be represented by individual subjects. Cluster analysis, by its very nature, is designed to maximise the similarity or dissimilarity in the group of individuals investigated. Despite this, we achieved a clear-cut distinction only in relation to negative cognitions and endogenous depression.

In the Pittsburgh research the results of cluster analysis were rather inconclusive, with the clusters formed not indicating a precise pattern, whereas in Newcastle the identified symptom clusters proved distinct. Some studies have not demonstrated the presence of major depressive disorder in childhood using either multivariate techniques or adult-type diagnostic criteria (Seifer *et al*, 1989). It is possible that the basis of the discrepancy resides in the methods they employed. These authors appear to question the clinical approach which lists diagnostic criteria for depression on two main grounds – the possibility of flaws due to confirmatory bias on behalf of the investigator or of the "identification of spurious syndromes in polysymptomatic children". However, our work shows that there is a substantial degree of concordance between clinical diagnoses and multivariate approaches. We argue that there is a potential flaw in some studies which inhibits concordance, consisting of a lack of appreciation of the presence of co-morbidity – depression may coexist as a clinical syndrome with other syndromes but may not necessarily be the main syndrome.

Similarities with adult studies

Adult factor or cluster analysis studies consistently reported an 'endogenous' factor or cluster (Nelson & Charney, 1981; Rassaby & Paykel, 1979) and other clusters. For instance, in research with depressed patients, Andreasen & Grove (1982) identified four clusters which roughly correspond to severe depression with endogenous features, less severe depression, bipolar depression, and psychotic depression. These factors and clusters proved to be stable irrespective of patient status, type of patient population or of the instruments used.

In the multivariate studies of child and adolescent data some additional factors have been reported, namely negative cognitions and irritability. In the Pittsburgh research, suicidal thoughts loaded on both of the last two factors and the association between a sense of hopelessness and suicidal behaviour parallels findings in adults by Beck *et al* (1975). Ryan *et al* (1987) argue that the loading of suicidal ideation and suicidal acts on these two separate factors is consistent with the view that there are two distinct sorts of suicidal children and adolescents: those who present with a sense of hopelessness (as part of a depressive disorder), and those who are impulsive, irritable or antisocial (but not necessarily as part of a depressive illness). In our research there are no loadings of suicidal ideation on the endogenous component, but there are significant such loadings on the negative cognitions component irrespective of whether the data derives from the child or the parents. Suicidal ideation also loaded on the anger–irritability component when using data deriving from the parents.

The traditional view of the development of negative cognitions in depression states that the altered thoughts in depressed individuals are consequent upon their depressed feelings. When the process of depression is ameliorated then the cognitions return to normal. The cognitive therapists take an opposite view. They believe that the patient's negative cognitions lead to a negative appraisal of the individual, the future and the world (Beck, 1970). If the depressive thoughts are found to be illogical when examined by the individual, there is the basis for improvement in depression overall. The cognitive model has impressive research evidence to back its assertions (Williams, 1984). However, there is a group of sufferers from depression with high genetic loadings who are less likely to respond to cognitive treatment (Rush *et al*, 1984). These individuals largely have endogenous symptoms of depression when they become depressed. Both these groups of patients have negative cognitions.

The separation of the negative cognitions and endogenous clusters in our analysis suggests that depression in childhood may differ from that in adults. We need to know more about the origins, nature and duration of these symptom patterns in our child population. A number of questions arise. Are the negative cognitions in our children enduring traits or are they consequent upon a depressive process? Do the children with endogenous symptoms go through a stage of having negative cognitions before they develop their severe depressive symptoms?

The Newcastle school (Kiloh & Garside, 1963; Carney *et al*, 1965), on the basis of multivariate analyses of adult data, asserted that two separate syndromes of depression could be distinguished – neurotic and psychotic – but Kendell (1968) did not replicate these findings. The Newcastle child data suggest clustering on the basis of severity – a severe depression cluster similar to endogenous depression in adults. The less severe syndrome of depressive cognitions is difficult to relate to classification with adult psychiatric patients – it does not correspond entirely with the less severe category of Andreasen & Grove (1982).

Finally, our findings illustrate the truism that what is obtained from multivariate analysis reflects the data that are analysed. When using the SPI, a cluster of severe depression, anxiety and school phobia emerged and another of depression without somatic symptoms (Kolvin *et al*, 1989). When using the Kiddie-SADS symptom items the distinction is between a severe endogenous depression and depressive cognitions with suicidal thoughts. Nevertheless, the multivariate clusters provide good validation of the traditional clinical approach to classification. Further, as cases have been assigned to groups or clusters by mathematical means this has allowed independent confirmation of various clinical schemes for diagnosing depression in adolescence, namely the SPI, the Kiddie-SADS (DSM-III) and the Newcastle scheme.

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Diagnosing Childhood Depression
Who Should be Interviewed – Parent or Child?
The Newcastle Child Depression Project

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The extent of the similarities and discrepancies in the reporting of depressive symptomatology by children and their mothers was examined. Child–parent agreement was not always impressive, particularly for more subjective symptoms. It is suggested that direct psychiatric assessment of children provides a more accurate picture of their mental state regardless of presenting disorder, but particularly where depression is suspected.

The last two decades have seen substantial progress in the development of standard interview schemas for the assessment and diagnosis of psychiatric disorders in adults (Goldberg *et al*, 1970; Feighner *et al*, 1972). Until recently, developments had been slower in child psychiatry, where clinicians have traditionally focused on explanatory psychopathology rather than symptoms. It is not clear why this important aspect of assessment has received such scant attention, but one possibility is that clinicians' theoretical training may have made them more comfortable in seeking causes rather than symptoms.

Another reason is that symptoms may be confusing – some symptoms are situation-specific, so that what is revealed in one setting may not be apparent in another. Only recently have the important implications of this come to be appreciated, as in pervasive hyperactivity (Sandberg *et al*, 1978, 1980). It is now appreciated how essential it is for clinicians to use a variety of sources of information to obtain as comprehensive a picture as possible of the child in his environment. The conceptual limitations of some prepubertal children may limit the provision of an accurate chronology of themselves, whereas adolescents may be reluctant to let others know their inner feelings. Information should therefore be obtained from parents and teachers in addition to direct clinical observation of the child himself.

However, there are drawbacks to such indirect approaches. Adults may be insufficiently aware of the inner experiences, thoughts and emotions of their adolescent offspring, as Rutter *et al* (1976) have demonstrated. Moreover, while play techniques and behavioural observations are suitable for assessing fantasy, symbolic meaning and general functioning of younger children, they do not allow precise symptom assessment and are prone to misinterpretation. We have recently seen the potential advantage of combining semistructured interviews of the child with those of the parents. We do not consider this an academic issue but one with fundamental, practical implications.

A number of different schedules were employed in the assessment of depression, and these are described in the preceding paper. The most comprehensive of these is the Kiddie–SADS (Orvaschel *et al*, 1982; Chambers *et al*, 1985). In its original format the Kiddie–SADS has an unstructured section designed to obtain information about an ongoing episode of child psychiatric disorder, and a semistructured section for symptoms, with relevant probes and scales. Although the child is interviewed separately and after the parent, the interviewer is guided by information provided by the parent, so the interview is not blind. In the recording of the child's and parent's account of each symptom, the examiner is required to make a summary clinical judgement about presence or absence and severity of the symptom.

As part of the Newcastle Depression Study, one essential modification was made to the Kiddie–SADS procedure: independent, blind interviews of parent and child (usually simultaneous) were carried out, thus avoiding a halo effect for the rating of symptoms. Independent ratings of severity of each symptom were made by each examiner, based on the interview with the child or parent alone.

For the purpose of this paper we report on 87 of the 95 children who were selected for intensive study. Those cases on whom full data were not available were excluded.

Method

For each symptom, ratings can be categorised as reported by neither child nor parent (A); reported by one of these (child (B) or parent (C)); or reported by both (D).

The analyses described below confine themselves to the comparison of positively reported symptoms only by mothers and indexed children; they are of ratings, not of raters.

Three statistical analyses were undertaken, Cohen's kappa, a test for symmetry, and an overall measure of agreement on the presence or absence of symptoms. Kappa (*k*; Cohen, 1960) is a statistic specifically designed to measure the inter-observer reliability of categorical data, which corrects for chance or expected agreements. On this occasion, kappa was used to measure agreement between ratings about child behaviour based on interviews with the children and those with their parents. A test for symmetry (Everitt, 1977) was also performed. In our data this tests the hypothesis that excesses of symptoms reported by children and their mothers occur with the same degree of likelihood. If the χ^2 distribution is significant, the hypothesis is rejected. Finally, a simple analysis of percentages in relation to the presence or absence of symptoms was carried out (Hartmann, 1977). For the latter purposes we have used the following formulae based on our four rating categories:

$$\text{(a) Percentage overall agreement} = \frac{A+D}{A+B+C+D} \times \frac{100}{1}$$

$$\text{(b) Percentage agreement on occurrence} = \frac{D}{A+B+C+D} \times \frac{100}{1}$$

$$\text{(c) Percentage occurrence as reported by child only} = \frac{B}{A+B+C+D} \times \frac{100}{1}$$

$$\text{(d) Percentage occurrence as reported by parent only} = \frac{C}{A+B+C+D} \times \frac{100}{1}$$

A total of 52 items were examined. Fourteen items which appeared to duplicate others or were sub-items of main themes, or in which there was little spread of scores across the scale, were excluded. The findings are presented in five categories:

Group 1: symptoms with good overall agreement about presence and absence (greater than 60%)
Group 2: symptoms with good child/parent agreement as to occurrence
Group 3: symptoms reported more often by the child
Group 4: symptoms reported more often by the parents
Group 5: symptoms whose presence is reported in roughly equal frequency by parent and child.

Results

Group 1: agreement about presence or absence of symptoms

The range of agreement extended from 40% to 86% with the majority falling between 60% and 70%. Table 1 depicts the nine symptoms with the highest rates of overall percentage agreement and also the relevant kappa coefficients. The percentage agreed occurrence has also been included.

Table 1
Symptoms with high levels of overall agreement as to presence or absence

Symptom	% Overall agreement	Significance of kappa	% Agreed occurrence	Test of symmetry
Psychomotor retardation	86	$P<0.01$	29	NS
Obsessionality	85	$P<0.05$	24	NS
Loss of appetite	87	$P<0.001$	53	NS
Suicide attempts	82	$P<0.001$	38	NS
Suicidal ideation	80	$P<0.01$	32	NS
Loss of interest	75	$P<0.001$	50	NS
Anhedonia	71	$P<0.001$	47	NS
Weeping	71	$P<0.001$	43	NS
Initial insomnia	70	$P<0.001$	49	NS

Table 2
Symptoms with good agreement between child and parent as to occurrence

Symptom	% Agreement	Significance of kappa	Test of symmetry
Loss of appetite	53	$P<0.001$	NS
Loss of interest	50	$P<0.001$	NS
Initial insomnia	49	$P<0.001$	NS
Reactivity of mood	48	$P<0.001$	NS
Anhedonia	47	$P<0.001$	NS
Irritability	46	$P<0.05$	NS
Changed school attitude	43	$P<0.05$	NS
Weeping	43	$P<0.001$	NS
Social withdrawal	41	$P<0.01$	NS
Anger	41	NS	NS

Most of these symptoms are observable, the exceptions being anhedonia and suicidal ideation. However, in many cases the overall agreement reflects agreement on absence of symptoms. Of the five symptoms with greatest level of concordance, four of these were present in under 40% of the group (Table 1). Hence, despite good overall agreement, kappa is not necessarily highly significant. Symptoms with percentage overall agreement below 50% with non-significant kappas are not listed. The majority were essentially subjective, e.g. self-denigration, sense of hopelessness, sense of guilt, self-dislike, decreased concentration, brooding. However, there were a number which on the surface are objectively observable, such as increased appetite, morning and evening fatigue, anger, and separation anxiety.

Group 2: symptoms with good agreement between child and parent as to occurrence

Agreement about occurrence (Table 2) is partially dependent on the level of the symptom in the population under scrutiny. Only one-fifth of the symptoms studied showed rates of agreement of occurrence of over 40%, with only

Table 3
Symptoms reported more often by children

	% By child only	% By parent only	Test of symmetry
Twice as frequently			
Self denigration	49	20	$P<0.05$
Feeling unloved	46	23	NS
Guilt	69	29	$P<0.05$
Feelings of emptiness	65	23	$P<0.05$
Sense of failure	56	25	$P<0.05$
Compulsions	55	22	NS
Morning fatigue	58	21	NS
Psychomotor agitation	63	27	NS
Fears and phobias	47	22	$P<0.05$
Quality of mood	49	22	$P<0.05$
Three times as frequently			
Déjà vu	77	10	$P<0.001$
Self dislike	60	20	$P<0.05$
General anxiety	67	20	$P<0.01$
Obsessions	64	12	$P<0.01$
Suicidal ideation	46	15	NS
Suicidal attempts	33	0	$P<0.05$

Table 4
Symptoms reported more often by parents

	% Parent alone	% Child alone	Test of symmetry
Hypersomnia	57	29	NS
Increased appetite	53	37	NS
Anhedonia	32	21	NS
Exaggerated illness behaviour	48	21	NS

Significance values for test of symmetry are given according to the χ^2 statistic with Yates' correction for small number when appropriate

loss of appetite and loss of interest having a percentage agreement greater than 50%. Unsurprisingly, most of the symptoms listed in Table 2 are potentially objectively observable.

Group 3: symptoms reported more often by the child

These included 39 out of the 52 symptoms studied, but this excess only reached an impressive magnitude in 30% of the items. Of these, ten symptoms were reported twice as frequently and a further seven were reported three times as frequently as those by parents (Table 3). An examination of Table 3 reveals that less than one-third of the symptoms are observable.

Group 4: symptoms reported more often by parents

These proved few in number – four in all (Table 4). The only surprise in this list is the symptom of anhedonia.

Group 5: symptoms reported equally commonly by parents and children

These were a variable group and included objective symptoms such as separation anxiety, hypochondriasis and anger, as well as the rather more subjective experience of nightmares.

The coefficients of agreement (kappas) often achieved high levels of significance, particularly in relation to those symptoms which were more objective or observable, but with some important exceptions such as anhedonia.

The test of symmetry confirms the judgements about the excesses of symptoms reported by children (Table 3), particularly in relation to where they are reported three times as frequently as in the parents' reports. However, none of the symptoms reported more often by the parents proved significant (Table 4).

Factors affecting agreement about symptoms

An attempt was made to ascertain the relationship of a number of factors relating to agreement between children and parents. Those studied included diagnosis, sex, IQ, evidence of puberty, and social class. Because of the small size of samples we have noted only those symptoms for which there were substantial differences of kappa, which were selected according to each of the factors above. A standard error (SE) of kappa was calculated for each sample (Fleiss, 1981). Given two kappas and their standard errors, the ratio $(k_1-k_2)/\sqrt{SE_1^2+SE_2^2}$ was referred to a standard normal table and differences which were significant at the 5% level are indicated. As a rough guide, this proved to be the equivalent of a difference of more than 0.3 in the kappa coefficients.

The cases were divided into depressed and non-depressed groups based on the SPI (Standard Psychiatric Interview, Goldberg *et al*, 1970: see first paper – section on measures used) and kappas were calculated for the symptoms in relation to each of these. Widely differing kappas were found on nine symptoms. Two-thirds of the higher kappas were in the non-depressed group with agreement mainly on the absence of symptoms, with the relevant symptoms including self-denigration, lack of energy, morning fatigue, irritability, fears and phobias, nihilistic delusions and duration of present episode. In the depressed group, significantly higher kappas were found with only two items: suicidal ideas and compulsions. These results favour better agreement between the child and parent in the non-depressed group but mainly on items usually employed to characterise depression. Furthermore, in the depressed group there was poor agreement between child and parent on accounts of duration of the present episode. In absolute terms, the average difference between kappa coefficients on the above items was 0.43.

There were some interesting male–female differences. In girls there was significantly higher agreement about suicidal behaviour (two items), insight into their illness, and duration of the present episode. We suspect these are elements of themes girls share with their mothers. In boys there was significantly higher agreement about weight gain, morning fatigue, aggression within the home, obsessionality and compulsions. All of these features are potentially observable and do not seem to represent information that youths will share with parents. The average difference between kappa coefficients on the above items was 0.39.

Children were divided into two groups by intelligence quotient (IQ) - above average and below average. There was much better agreement in the case of brighter children concerning number of hospital admissions, somatic symptoms of weight gain, nocturnal restlessness and morning fatigue, and with symptoms associated with depression including withdrawal. These suggest that not only is intelligence in itself an important factor in contributing to the type of symptom expressed, but it is likely to facilitate communication as well. In contrast, in the less intelligent group there was better agreement on obsessions, compulsions and nightmares.

The children were also divided according to whether they had shown pubertal changes. The prepubertal group had significantly higher agreement on two-thirds of the items. First, the parents seemed aware of those symptoms reported by the child which reflected anxiety or depression - anhedonia, self-denigration, morning fatigue, hypersomnia, self-dislike, phobias and aggression confined to the home. Second, there was also higher agreement on the number of hospital admissions, presumably reflecting a lesser number but greater salience of the meaning of hospital admission for younger children. For the pubertal group, higher agreement was confined to duration of the present episode, evidence of disturbances of conduct, and suicidal themes. In absolute terms, the average difference between kappas on the above items was 0.44.

The families were split into two occupational class categories - semi-skilled or unskilled, and skilled and managerial. In the families from higher occupational strata there was significantly higher agreement on ten symptoms, most of which might be perceived as reflecting anxiety or depression - anhedonia, loss of appetite, weight loss or gain, suicidal acts, somatic complaints, separation anxiety, phobias and compulsions, and nihilistic delusions. In the less skilled group there was only higher agreement on two items - duration of present episode and insight into the illness. The average difference between the kappa coefficients on the above items was 0.41.

Discussion

In adult psychiatry it is not always the practice to take a corroborative history. In paediatric psychiatry this is usual, as the child rarely seeks help directly and is usually brought to attention by worried or frustrated parents, on whom great reliance is then placed in eliciting the problem behaviour and symptoms. The child's own contribution to the formulation of his/her problem is often indirect and based on interpretation rather than direct observation or interrogation.

For a discipline based so commonly on data gathering from dual informants it is surprising how little attention has been paid to the extent of agreement or disagreement between children and parents. Perhaps children are assumed to be incapable of imparting reliable information, despite the findings of Herjanic *et al* (1975) that where factual information is concerned, child-parent agreement is high (80%). However, the findings of the same study, that agreement was lowest for items related to mental state, have been echoed in a variety of studies since that time.

Earlier research reported that mothers of children seen in three out-patient clinics underestimated their children's reports of feelings of self-esteem (Piers, 1972). Schopler & Reichler (1972), found that parental estimates of their moderately or severely psychotic children's behaviour correlated significantly with objective tests, but those of parents of mildly psychotic children were much poorer.

More recently, Leon *et al* (1980) found only a modest correlation between parent and child ratings of depression, while Pierce & Klein (1982) found that parents and children agreed only on seven out of 52 items of a behavioural checklist administered to both simultaneously, but separately. Weissman *et al* (1980), using a variety of self-rating scales with both children and adults, found that agreement between mothers and children on the assessment of the child was poor.

The undue reliance placed on parental accounts of children's behaviour and symptoms is all the more surprising in the light of findings which illustrate how parental appraisal can be impaired. In an important paper, Moretti *et al* (1985) demonstrated that two variables in particular were of significance. The first was the nature of the child's problem. Where this was a conduct disorder, parents tended to overestimate depressive symptoms in their child; where the child was affectively disturbed, parents underestimated how their children were feeling. The authors suggested that parents with behaviourally disturbed children rated them as more depressed because of their search for an acceptable explanation of their child's problem. Attribution of this to an underlying depression would increase their tolerance and acceptance while absolving them of direct responsibility for the child's unacceptable behaviour. However, Moretti *et al* do not consider the converse hypothesis that such children may be depressed but may not have the conceptual competence to appreciate and acknowledge it, and communicate it to others. The other important variable with potential for biasing parental report is parental mental state. Moretti's study found a significant correlation between the incidence of parental depression and perception of their child's depression. However, parent ratings of the degree of their own depression did not correlate significantly with their children's self-reports of depression.

Our findings confirm that there is more intrapsychic distress among clinic children than is apparent to their parents and that unless this is enquired for systematically, it will remain hidden. This work also confirms that children and adolescents report more depressive symptoms than their parents describe (Angold *et al*, 1987; Moretti *et al*, 1985; Reich *et al*, 1981; Orvaschel *et al*, 1981; Weissman *et al*, 1980). These reports include both out-patient and community studies. Only one study has not confirmed this pattern and this is probably a reflection of the unusual nature of the sample studied (Kazdin *et al*, 1983), so it is not directly comparable. Kazdin *et al*'s sample consisted of children admitted as in-patients to an intensive care facility for acute disorders, including highly aggressive destructive behaviour, and there exists the possibility that the children were motivated to represent themselves as less disturbed and their parents to represent their children as more disturbed. An exception to the general pattern concerns suicidal ideation or parasuicidal gestures, where our data suggest that parents are more aware of the potential for suicidal behaviour in their children. A similar finding has recently been reported in a Yale study (Angold *et al*, 1987).

From these results it is evident that children, even younger ones, should be asked directly about their feelings, as well as being assessed by indirect means. This point is forcefully underlined by the fact that only a few symptoms, usually objective, were reported to excess by parents, whereas over 50% of symptoms, nearly all subjective, were reported in greater numbers by the child. Rates of agreement between parents and children regarding the presence of a symptom were surprisingly low and were highest, but with only moderate agreement, for objective behavioural items.

Prepubertal children in general agreed better with their parents about a wide range of current symptoms than did adolescents. This confirms previous research that has shown concordance is lower in adolescence than childhood, suggesting either that teenagers reveal less of their feelings to their parents, or there is a relatively poorer appreciation by parents of their teenagers' feelings (Rutter, 1988; Rutter *et al*, 1976; Rutter & Graham, 1968), or both. These findings are in accord with evidence that, as children grow older, parents less reliably report the psychiatric symptoms their children display, whereas the children themselves become more reliable (Edelbrock *et al*, 1986). Nevertheless some caution is necessary with retrospective accounts by prepubertal children as they displayed poor agreement with their parents concerning the duration of illness, which probably reflects a poorer ability to give accurate accounts of the past and especially estimates of absolute duration (Rutter, 1988).

The literature remains unclear about agreement between parents and children according to the sex of their offspring. Angold *et al* (1987) report higher levels of agreement between parents and sons whilst Herjanic *et al* (1975) showed no differences. Our data suggest different patterns of correspondence in relation to different symptoms, with agreement being higher between boys and their mothers on some potentially observable symptoms, but these were mainly those not directly reflecting depression. In girls, agreement is higher only on those symptoms which they might be prepared to share with their mothers.

In his review of depression in childhood, Rutter (1986) touches on an important distinction, the children's abilities "to express depressive affects and cognitions, and their ability to report them". This distinction, and children's ability to reflect on their own cognitive processes, must be dependent on developmental factors (Kovács, 1986) which include the ability to conceptualise about these inner feelings. Can our data make a contribution to the understanding of these issues? Broadly speaking, they reveal that agreement over symptoms appears to be a function of the occupational class of the parents and the intellectual level of the offspring. Research on conceptual development tends to focus on the processes underpinning conceptual ability. It is now accepted that the quality of the environment is one important determinant of the rate of conceptual development. Our findings suggest that part of the poor agreement between parents and children about depressive symptoms is likely to be a reflection of a number of interacting factors which will have important implications for communication about affective disturbance within the family. These include the subtlety of the psychic symptoms, and, for the child, coping with recognising and labelling them. Others consist of the quantity and quality of language stimulation in the home; the style and level of empathic communication shown by the parents towards their child; and the level of cognitive maturity of the child at the time of referral.

In the assessment of childhood depression, it would seem that parental accounts should be seen as complementary to those of the child (Poznanski *et al*, 1985) rather than the reverse, as it was clear during many interviews that some parents had little idea of the true intensity of their child's distress. This may have been either because teenagers are less revealing of their feelings, or parents are less good at appreciating such feelings, or both.

Finally, in no way does our research suggest that parents' accounts should be discounted. There is good evidence to suggest that parents rarely report the presence of affective disorders that are not present according to the children themselves (Orvaschel *et al*, 1982; Angold *et al*, 1987; Angold, 1988), except on occasions when diagnosis of conduct disorder is particularly disadvantageous. Thus, if parents indicate that their child is depressed, the clinician should view this seriously.

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The Context of Childhood Depression
The Newcastle Childhood Depression Project

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This paper examines the family background, premorbid personality traits and adverse life events preceding childhood depression The non-depressed group proved more likely to have experienced pre-school bereavement and familial disturbance, and to come from the more deprived background; there was also an excess of premorbid anxiety and hysterical personality traits in this group. School phobia and premorbid obsessional traits were associated with the depressed group. Although there was an association between depression and the total number of adverse life events, this was more substantial when the perceived impact of the events was taken into account. Of the individual classes of life event, only illness and a change in social relationships were associated specifically with depression.

Previous research in the adult sphere has demonstrated relationships between certain events and depression, especially events judged as having a strong negative impact, carrying a degree of threat, and involving permanent loss or separation (Brown & Harris, 1978; Paykel *et al*, 1980). More recently, Brown *et al* (1986) have taken this a stage further and proposed a persuasive and sophisticated theory which attempts to link the highly complex chain of adverse psychological life experiences with later depression. They have suggested a three-factor model giving emphasis to certain *current provoking agents* which determine when an episode of depression takes place, the most significant being the severe events associated with an important loss or disappointment; other life events play a part but appear somewhat less influential. In adulthood the likelihood of these experiences resulting in depression in women is subject to *vulnerability factors* such as a lack of social support, the lack of an intimate tie with a husband, and the presence in the home of more than two children aged under 14 years (Brown & Harris, 1978). The third factor of symptom formation influences how the depression expresses itself.

Lower social class is associated with a greater number of provoking agents and it is thought that this allows vulnerability factors to act more powerfully than in a middle class population. Brown and Harris do not go so far as to suggest that this might constitute a fourth 'facilitating' factor relating to both the vulnerability and provoking agents, nor that there may be further factors as yet unidentified.

Much life event research has been criticised (Brown & Harris, 1978) on the grounds of faulty methods of collecting and recording life event data (Goodyer *et al*, 1985). Recent life events may be as much a consequence, as a cause, of illness but often insufficient attention has been paid to determining the independence of such events from illness. In addition, questions arise about whether events should be weighted, but research suggests that unweighted and weighted life event scores perform equally (McFarlane *et al*, 1980; McFarlane, 1985).

Unlike Brown and his colleagues, others emphasise earlier experiences in general (Rutter, 1981). Further, in a review of stress correlates of depression in adults, Rutter (1986) notes that depressive disorders are commonly precipitated by stress events "perhaps especially those involving loss or breaking of important love relationships (Brown & Harris, 1978; Paykel, 1982) . . . also some preliminary evidence that the type of life events associated with depression may differ from those associated with anxiety states (Finlay-Jones & Brown, 1981)". He therefore suggests the potential utility of examining the associations of childhood depression with different kinds of stress events ensuring systematic comparison with non-depressive disorders. In this there are possible limitations – the first concerning the uncertainty of the extent or specificity of kinds of stresses associated with depression (Paykel, 1982); second, loss events do not necessarily have a specific outcome – they may lead to a range of disorders both of a somatic and psychic variety; and third, how far such stresses impinge directly on the child and how much they act indirectly through the parents and family. A further question is whether there are differences between different types of deprivation – in the adult field there is little evidence of such differences (Patrick *et al*, 1978). Finally, the magnitude of the correlations reported between life stress and psychological adjustment are usually in the order of 0.3 to 0.4, which suggests that such events or changes account for a relatively small proportion of the variance of adjustment problems (Cohen, 1988).

In the child sphere, there is good evidence that psychiatric disorder is commonplace in the offspring of psychiatrically disturbed parents (Quinton & Rutter, 1985). Parental depression is an important precursor of child psychiatric disorder (Orvaschel, 1983; Weissman *et al*, 1986); and a range of other family and social experiences are precursors of psychiatric disorders in childhood (Rutter, 1981). More specifically, prospective studies have provided evidence of a relationship between certain child psychiatric disorders and preceding major life events, especially those with a negative psychological impact (Goodyer *et al*, 1985; Steinhausen & Radtke, 1986). Three such key life events have been highlighted – parental divorce, the birth of a sibling and the hospital admission of a child (Isherwood *et al*, 1982).

Of relevance to the current research is the relationship between life events and subsequent depression (Hudgens, 1974; Johnson & McCutcheon, 1980; Swearingen & Cohen, 1985*a*,*b*). Previous studies conducted in this department (Goodyer *et al*, 1985, 1986, 1987) compared children with a mood disorder with matched controls from the community. They found that life events preceded mood disorder in childhood.

Hence the psychosocial context of youthful subjects is crucially important and this research gives an opportunity to seek, and perhaps identify, specific provoking agents, and also potential vulnerability and facilitating factors in relation to childhood depression.

Method

This study uses a design which allows a comparison of child and adolescent patients with depression with a combined group of patients with other child psychiatric syndromes (Kolvin *et al*, 1991). Depression was diagnosed in two ways: first, clinically using a modified Standardised Psychiatric Interview (Goldberg *et al*, 1970) of the child; and second, by categorisation into syndromes by the cluster analysis of items from an intensive interview of the child, using the Kiddie–SADS schedule. The interviewer of the mother was blind to both the clinical diagnosis and also to the specific research diagnosis based on an independent interview of the child alone.

The clinical method gave broadly equal numbers of depressed and non-depressed (but otherwise disturbed) children. Cluster analysis gave rise to two main syndromes of depression, represented by endogenous depression and negative cognitions, as well as a residual, maladjusted group. The term 'endogenous' was used to conform with its usage by Puig-Antich and his colleagues (Chambers *et al*, 1985; Ryan *et al*, 1987) and identifies a group whose symptoms indicated a biological depression. The mixed, maladjusted group was typical of the patients being referred to our University child psychiatric clinic and included an element of antisocial behaviour in one-third, albeit not necessarily as their main disorder (Kolvin *et al*, 1991). The numbers in each group were as follows:

(a) endogenous depression ($n = 30$; 32%)
(b) depression with negative cognition ($n = 22$; 23%)
(c) mixed, maladjusted ($n = 43$; 45%)

Onset of illness was defined reasonably well for the population under scrutiny as previously shown (Goodyer, 1987). Life events and the family, social and psychological background of the three groups were compared.

The child's early development, personal, family and social background and premorbid personality characteristics were assessed. The last included characteristics rated on sets of ordinal scales, previously developed for a study of school phobia, with summation to give composite scores reflecting personality traits (Berney *et al*, 1981; Kolvin *et al*, 1984). In addition to a clinical interview, the mothers completed the Leeds self-rating questionnaire for the assessment of anxiety and depression (Snaith *et al*, 1976).

The method used to gather information about life-events and for recording the onset of illness broadly followed that of previous research in the Newcastle department (Goodyer *et al*, 1985, 1986, 1987) but with some modifications. The life-event schedule, designed for a school-age population, was administered to the mother by a trained interviewer. It had been established previously that interviewers could collect life-event information in a reliable manner, and date the onset of illness. The schedule contains appropriate probes about clearly defined events with operational definitions, and these were grouped into 11 classes. The interviewer used a general probe to inquire about each class of event, and then specifically about each event within that class. Questions were restricted to events occurring in the twelve months before onset of the disorder, this being defined as major signs and symptoms not previously present and/or the change in behaviour which had led to referral.

As staff resources did not allow the use of the full procedure, we varied the format both for 'independency' and for 'objective negative impact' (Paykel, 1983; Goodyer *et al*, 1985). Firstly, the trained interviewers were asked to ensure that they only recorded those life events which clearly preceded onset, and thus were independent of illness. Secondly, the number of events surveyed was restricted by excluding those which reflected an impact which was likely to be positive and by combining certain events. Thirdly, as we had previously reported substantial agreement between pairs of raters prior to discussions about consensus (Goodyer *et al*, 1985), it was decided that on this occasion the interviewer should simply rate the degree of impact without reference to consensus techniques. The scale was condensed as follows: (1) no event; (2) an event with little in the way of objective negative impact; (3) an event with moderate negative impact; (4) an event with marked or severe impact.

This allowed events to be classified in three ways – first, by their mere presence; second, by the degree of their negative impact; and, third, by their general characteristics. We focused on 11 classes of event: family discord,

Table 1
The social context, maternal state, and adverse experiences of depressed and non-depressed children[1]

	Clinical diagnosis				Cluster 'diagnoses'							
									(Subsidiary classification)			
	Not depressed (maladjusted)		Depressed group		Not depressed (maladjusted)		Depressed group		Endogenous depression		Negative cognition	
	A		B		C		D		E		F	
	n	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)
Social context												
Social Class IV & V	19	(54)	20	(49)	19	(61)	20	(44)	14	(56)	6	(30)*
Unemployment (>6 months)	14	(38)	8	(21)	15	(46)	7	(16)**	3	(13)*	4	(21)
Attended grammar school (M)[2]	10	(23)	19	(42)*	6	(16)	23	(46)**	11	(38)*	12	(57)***
Attended grammar school (F)[2]	9	(23)	16	(38)	4	(11)	21	(46)***	10	(39)*	11	(55)**
Mean duration of marriage (yrs)	15.65		16.23		14.32		17.23*		17.45*		16.89	
Maternal state												
Current psychiatric disturbance	25	(56)	14	(32)*	24	(60)	15	(31)**	8	(28)**	7	(35)
Worries substantially	16	(36)	10	(23)	18	(45)	8	(17)*	5	(18)	3	(15)
Non-situational panic	28	(62)	24	(55)	27	(68)	27	(68)	12	(42)*	13	(65)
Depressive mood	9	(20)	9	(21)	10	(25)	8	(16)	5	(17)	3	(15)
Sleep disturbance	18	(40)	12	(27)	19	(48)	11	(22)*	8	(28)	3	(15)
M's worries about her health[2]	24	(53)	20	(46)	25	(63)	19	(39)*	12	(41)	7	(35)*
M's worries about F's health[2]	21	(58)	13	(34)*	19	(59)	15	(36)*	9	(38)	6	(33)
General Depression (Leeds)	15	(36)	14	(35)	17	(46)	12	(27)	11	(39)	1	(6)**
General Anxiety (Leeds)	23	(51)	13	(30)*	24	(60)	12	(25)***	8	(28)**	4	(21)**
Adverse experiences												
Abnormal delivery	1	(2)	8	(18)*	3	(8)	6	(13)	2	(7)	4	(21)
Accidents – ever	28	(62)	22	(50)	29	(73)	21	(43)**	13	(44)*	8	(40)*
(since 2 years old)	26	(58)	20	(46)	27	(68)	19	(39)**	11	(38)*	8	(40)*
Bereavement												
pre-school years	14	(30)	5	(11)*	14	(34)	5	(10)**	2	(7)**	3	(14)
(loss of GP pre-school)[4]	10	(22)	3	(7)*	10	(24)	3	(6)*	2	(7)	1	(5)
school years	20	(44)	25	(57)	16	(39)	29	(59)	18	(64)*	11	(52)
School problems												
peers	17	(38)	20	(44)	12	(30)	25	(50)	17	(59)*	8	(38)
non-attendance	18	(39)	25	(56)	12	(29)	31	(62)**	19	(66)**	12	(57)*

1. Comparisons are with the relevant non-depressed group (i e B vs A, D, E, & F vs C)
2 M = mother.
3 F = father.
4 GP = grandparent.
*$P<0\ 05$, **$P<0.01$, ***$P<0.001$.

accidents, illness, school, entrance (e.g. pregnancy), exit (bereavements), threatened exit (departures from home), family mobility (migration), financial, changes in social relationships, and legal. Event scores for the 11 classes were summed. To ensure that each of these classes had an equal weighting, the recording of an event within a class led to that class being ascribed a score of one or zero. In a similar manner the negative impact of events within a class was rated on the four-point scale described above. For the purpose of analysis, the negative impact was divided into two broad groups, namely 'marked or severe' versus 'little or none' – the former being described as substantial impact. Life event data were available on 88 children. Summation of event scores and impact scores gave the total number of classes in which there had been an event and in how many there had been substantial impact.

Results

Table 1 shows the factors of social context, maternal mental state and adverse experiences, and their prevalence in depressed and non-depressed children.

Depressed children tended to come from higher socioeconomic strata (managerial or skilled) than the non-depressed, but the differences only proved significant for the negative cognition subgroup. More impressive were the differences in the educational background of the parents of depressed youths: both mothers and fathers proved significantly more likely to have been to the equivalent of grammar school. Consistent with this is the finding that prolonged unemployment of the bread-winner (more than six months duration) was associated with the non-depressed group although parental chronic physical ill health did not

Table 2
Adverse life events

Class of event	Clinical diagnosis				Cluster 'diagnoses'							
	Not depressed (maladjusted) A		Depressed group B		Not depressed (maladjusted) C		Depressed group D		(Subsidiary classification) Endogenous depression E		Negative cognition F	
	n	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)
Illness events												
occurrence	19	(44)	27	(60)	17	(45)	29	(58)	18	(62)	11	(52)
impact	11	(26)	19	(42)	9	(24)	21	(42)	15	(52)*	6	(29)
Exit events												
occurrence	9	(21)	15	(33)	9	(24)	15	(30)	7	(24)	8	(38)
impact	5	(12)	11	(24)	5	(13)	11	(22)	3	(10)	8	(38)*
School events												
occurrence	39	(91)	42	(93)	35	(92)	46	(92)	27	(93)	19	(91)
impact	15	(35)	20	(44)	15	(40)	20	(40)	13	(45)	7	(33)
Family events												
occurrence	27	(63)	29	(64)	26	(68)	30	(60)	21	(72)	9	(43)
impact	15	(35)	16	(36)	14	(37)	17	(34)	12	(41)	5	(24)
Financial events												
occurrence	19	(44)	16	(36)	16	(42)	19	(38)	12	(41)	7	(33)
impact	6	(14)	5	(11)	4	(11)	7	(14)	6	(21)	1	(5)
Social relationship events												
occurrence	11	(26)	25	(56)**	9	(24)	29	(58)**	17	(59)**	10	(58)
impact	8	(19)	16	(36)	4	(11)	20	(40)**	13	(45)**	7	(33)
Summed scores	Mean		Mean		Mean		Mean		Mean		Mean	
Occurrence scores	3.79		4.62		3.97		4.40		4.66		4.05	
Impact scores	1.74		2.47		1.63		2.48*		2.79**		2.06	
Number of subjects	43		45		38		50		29		21	

Comparisons are with the relevant non-depressed group (i.e. B vs A; D, E, & F vs C).
*$P<0.05$, **$P<0$ 01, ***$P<0.001$.

differ significantly between the main groups. The parents of depressed children had longer marriages than those of non-depressed children.

The mothers of non-depressed children showed a greater frequency of psychiatric symptoms, concerns or worries than those of the depressed. Similar patterns were obtained when the diagnostic groups derived from cluster analysis were compared. Further, on the Leeds questionnaire, the mothers of the non-depressed children had higher anxiety scores than the mothers with depressed offspring ($P<0.05$). Depressive symptoms were present in about one-fifth of the mothers, although a positive family history of psychiatric disturbance was more common, being present in 49% of first-degree relatives of the children taken as a whole: depression occurred in 37% of the first-degree relatives. There were no significant differences between the depressed and non-depressed groups.

Of other adverse experiences, an abnormal delivery at birth, though not common, was significantly more frequent in the clinically-defined depressed group of children. In contrast to this finding, the occurrence of memorable accidents was more frequent in the non-depressed group; largely reflecting accidents occurring after the age of two years.

Bereavement in the pre-school years was largely a characteristic of the non-depressed group, being experienced by about one in three of the non-depressed but by only one in ten of the depressed ($P<0.05$). Of those bereft, two-thirds had lost a grandparent; this was significantly more frequent in the non-depressed group. Only two children lost parents; one of whom became depressed. There is an important reversal of this pattern in the school years, with an increase in the number of bereavements associated with depression. Bereavement was experienced by about 40% of the non-depressed group but by about 60% of the depressed. Again, this usually represented the loss of a grandparent. Five children lost parents, two their mothers and three their fathers. All of these developed childhood depression, of the endogenous subtype in three and in association with negative cognitions in two.

A substantial proportion of the non-depressed group had definite problems with their peers at school (30–38%), but an even greater proportion of the depressed children had such problems (44–50%), this being particularly high in the subgroup with endogenous depression (59%). Depression was associated with higher rates of absenteeism, here defined as more than a fortnight's absence from school within the previous three months.

Life events

The data in Table 2 are presented as the number and proportion of subjects who had experienced adverse life

Table 3
Premorbid personality

	Clinical diagnosis				Cluster 'diagnoses'							
	Not depressed (maladjusted) A		Depressed group B		Not depressed (maladjusted) C		Depressed group D		(Subsidiary classification) Endogenous depression E		Negative cognition F	
	n	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)
A. *Personality traits*												
Lack of confidence	20	(44)	10	(23)*	14	(34)	16	(33)	9	(31)	7	(35)
Concern with cleanliness	4	(9)	14	(32)**	4	(10)	14	(29)*	9	(31)*	5	(25)
Perfectionistic	9	(20)	17	(39)*	8	(20)	18	(37)	13	(45)*	5	(25)
Indecision	21	(46)	11	(25)*	17	(42)	15	(31)	8	(28)	7	(35)
Romancing	20	(44)	7	(16)**	19	(46)	8	(16)**	6	(21)*	2	(10)**
Exploitation of feelings	17	(37)	8	(18)*	16	(39)	9	(18)*	6	(21)	3	(15)
	Mean		Mean		Mean		Mean		Mean		Mean	
B. *Personality types*												
Anxious	11.09		9.25*		10.20		10.18		10.14		10.25	
Hysterical	17.65		14.34**		17.20		15.06		15.17		14.90	

Comparisons are with the relevant non-depressed group (i.e. B vs A, D, E, & F vs C).
$^*P<0.05$, $^{**}P<0.01$, $^{***}P<0.001$.

events, including those for whom there had been a substantial negative impact. The scores for the classes of events have been summed and presented as means.

There were few occasions when a class of event achieved significant differences between the diagnostic groups. Nevertheless, a greater proportion of the depressed group, whether diagnosed clinically or syndromically by cluster analysis, tended to encounter adverse life events – the exception being 'threatened exit' and 'contact with the law' which proved more common (but not significantly so) in the non-depressed group. However, in the sphere of social relationships – represented by a change in the child's acceptance by his peers – there was a widespread excess of events within the depressed group.

When the scores for the eleven classes of event were summed, the clinically depressed group had a higher mean score but the differences were marginal ($P=0.05$). However, the mean impact scores were substantially higher in the depressed groups and subgroups but the differences were not always significant.

Although not shown in Table 2, exit events with a negative impact occurred significantly more frequently in the depressive cognitions subgroup ($P<0.01$); in contrast, family events occurred more frequently in the endogenous subgroup ($P<0.05$).

Premorbid personality

Unusual personality traits were found frequently (Table 3). Particularly common were marked obstinacy (present in 52%), impulsiveness (38%), attention-seeking behaviour (37%), and a marked degree of dependence either on close relatives (35%) or on a familiar environment (36%).

Obsessional traits were more frequent among the depressed group of children and particularly so in the case of the endogenous subtype. In contrast, the non-depressed group were significantly more likely to show lack of confidence, to be indecisive, to be prone to embroider or make up stories, to hold unrealistic ambitions, and to exploit the feelings of others in order to obtain their desires.

Summation of the scores of similar traits gives measures of overall personality types. The non-depressed group had significantly higher mean scores for 'anxious' and 'hysterical' personality patterns: the depressed groups tended to have higher 'obsessional' personality pattern scores. There were no notable differences on measures for dependency and sociability.

Vulnerability factors

The data was reorganised to examine the independent and combined effects of vulnerability and provoking factors in relation to childhood depression. The picture obtained differs little whether depression is diagnosed clinically, or syndromically by cluster analysis and so only one set of data, that from syndromic diagnosis, is presented. Review of our data has revealed two possible 'vulnerability' factors – bereavement in the early school years, and the personality factor of perfectionism.

For life events, we have confined our analyses to two – social relationship events, and the summed negative impact score where we have selected a cut-off to represent 'high' and 'low' scores. Table 4 shows that the presence of a vulnerability factor or specified life event is associated with a higher rate of depression with almost equal proportions of the sample being depressed in the presence of either the vulnerability factor or the life event. The absence of both the vulnerability factor and the life event does not result in a great fall in the proportion of children developing depression, nor does the presence of both give rise to a substantial rise in the rate of depression.

Table 4
Rates of depression in clinic cases exposed to vulnerability factors,[1] life events[2] or both

	Absence or low score		Presence or high score		d.f.	G^2 Attributed to parameter[3]	$P = <$
	n	(%)	*n*	(%)			
Bereavement	20	47	29	66	1	4.71	0.05
Social relationship	23	44	26	74	1	9.28	0.01
Both	8	33	14	88			
Bereavement	20	47	29	66	1	3.50	NS
Impact of social relationship	30	47	19	83	1	9.64	0.01
Both	11	34	10	83			
Bereavement	20	47	29	66	1	4.03	0.05
Total impact	36	50	13	87	1	8.30	0.01
Both	14	40	7	100			
Perfectionism	31	50	18	72	1	2.44	NS
Social relationship	23	44	26	74	1	6.74	0.01
Both	16	40	11	85			
Perfectionism	31	50	18	72	1	1.17	NS
Impact of social relationship	30	47	19	83	1	7.04	0.01
Both	22	43	10	83			
Perfectionism	31	50	18	72	1	3.36	0.05
Total impact	37	51	12	86	1	6.18	0.05
Both	23	43	4	80			

1. Vulnerability factors (i) Bereavement in the school years; (ii) Perfectionistic premorbid personality traits
2 Provoking life events: (i) Social relationships, (ii) Total impact-summed impact score.
3. Separate effects of explanatory parameters on depression (log-linear analysis).

Log-linear analysis demonstrates the separate effects of the explanatory parameters on depression. It is evident that certain life events over the previous year have a significant separate impact. Although the provoking factors selected for analysis have widespread effects, neither 'loss over the school years' nor 'perfectionism' have widespread separate effects. Finally, while interactions were not found statistically, some combined effects appeared crucial. For instance, all seven of the clinic patients who were both exposed to bereavement and had a high total life-event impact score, were classified as depressed.

Discussion

Surprisingly, we found many of the features traditionally associated with adult depression occurred as commonly in other forms of child psychiatric disturbance. There were few substantial differences between the depressed and the non-depressed groups. Those differences that occur merit comment.

Social and family factors

The findings suggest an association between childhood depression and higher social class, long-standing marriage, better employment, and better parental education. However, a more plausible explanation is that these patterns merely highlight the reverse associations with adverse social circumstances in the non-depressed group. The latter group, typical of the patients being referred to our university child psychiatric clinic, comprise an important element of antisocial behaviour (one-third of the non-depressed children have a diagnosable conduct disorder, but not necessarily as their main disorder (Kolvin *et al*, 1991)). However, because of comorbidity, this is also present to a lesser extent (about one-in-eight) in the depressed group, which is in keeping with the findings of others (Kaplan *et al*, 1984). Similarly the level of parental education for the depressed group is unusually high, particularly for the geographical area of Newcastle, which suggests that some of the differences are determined by referral effects.

More remarkable is the emphasis on factors associated with the non-depressed, psychiatric group. Thus, although there was a high level of maternal disturbance in both groups, the mothers of the non-depressed children, whether assessed by clinical interview or by self-rating questionnaire, had a higher frequency of affective symptoms, albeit as much anxious as depressed.

Youthful onset of depression has been associated with a high incidence of depression in relatives (Weissman *et al*, 1984). Although we expected and sought higher rates of depression in the families of the depressed group, differences comparable to those obtained by Weissman and her colleagues (1984) could only be obtained by a population study. The background factors for the non-depressed group probably relate to social disadvantage in the community, reflecting the complex context they provide for the child's disturbance. Nevertheless, our clinic results emphasise that abnormal social circumstances are not specific to depression.

Premorbid personality traits

The association of childhood depression with obsessional traits suggests the possibility of a predisposition to depression.

Perinatal and other physical factors

The association of an abnormal delivery with childhood depression parallels the previously reported link between early cerebral insult and childhood depression (Kolvin *et al*, 1984), suggesting a circumscribed biological vulnerability.

The association of a higher incidence of accidents with maladjustment may well reflect the greater psychosocial stress in this group (Kolvin *et al*, 1991), and would be in keeping with the relatively higher occurrence of conduct disorder in this group (Kolvin *et al*, 1991).

Social, relational and school factors

Although both depressed and non-depressed patients experience difficulties with their peers, the depressed group are much more likely to absent themselves from school. Although an association of depression in childhood with school and peer difficulties has been described previously (Puig-Antich *et al*, 1985), this was found in comparison with normal controls. The current finding supports the more specific link between depression and school phobia suggested by previous findings (Kolvin *et al*, 1984; Berney *et al*, 1981).

Loss

It is noteworthy that bereavement in the pre-school era, usually represented by the loss of a grandparent, is significantly greater in the non-depressed group. Although early bereavement has traditionally been included in the possible origins of depression (Lloyd, 1980) our data suggests that the association may be less simple and not specific. On the other hand, later loss, occurring in the school years, is associated with the depressed group and is significantly more frequent in the endogenous subtype. This calls into question the use of 'endogenous' – a more appropriate term might be 'biological'.

Life events

Few significant differences were found for the different classes of life event which precede the onset of childhood depression. The exception was events concerned with social relationships. Further, the individual impact of each of the other classes of events also did not suggest a strong specific relationship between recent life events and childhood depression. Even where associations do occur, the level of significance rarely extends beyond 5%.

The explanation probably lies in the nature of the groups being compared. Previous research compared children from a community sample for whom recent life events would have been relatively infrequent and randomly dispersed (Goodyer *et al*, 1985). In the current study the comparison is between subjects with diverse types of psychiatric disturbance and in these disorders, life events are likely to be common, even if the frequency varies between disorders.

Comparison of the cluster analysis syndromes showed that the endogenous depression group had a higher rate of negative impact events, but again these are seldom significant. On one occasion there is a hint of a specific relationship between the impact of an event and endogenous depression. For instance while half of those with an endogenous depression have an illness event with a negative impact, this only occurred in a quarter of the other two groups. Nevertheless, there are few other events with a negative impact that commonly precede endogenous depression or the depressive cognitions syndrome.

Our data suggest that prior environmental adversity, such as 'loss' or a recent change in the acceptance by peers, is likely to have important, powerful, but different influences for different types of childhood depression. Thus, while there are some significant associations between the impact of recent life events and sub-categories of depressive disorders, there are two reservations about making a definitive statement on causality (Goodyer *et al*, 1985).

First, there is the problem of ensuring that all events antedate symptoms (especially social acceptance by peers); and second, our data were collected retrospectively and the findings may be confounded by other factors that were not examined.

Our data give few hints about specificity. The low rates of individual events thwarted our endeavours to highlight specificity between events and different types of depression. Nevertheless, our findings suggest that family and school events may be important in the mixed-maladjustment group, loss and social relational stresses in the depressive cognitions group, and illness, school, family and social relational stresses in the endogenous depression group.

Our sub-groups were too small for us to attempt to unravel the influences of age and sex. Previous work in this department (Goodyer *et al*, 1986) has demonstrated that, with few exceptions, neither substantially influences the association between life event and psychiatric disorder in childhood.

Finally, we need to understand the magnitude or extent of the association between recent life events and psychiatric disorder, to allow an estimate of the relative contribution of events with a negative impact – particularly whether such events are sufficient in themselves as aetiological influences (Goodyer *et al*, 1985). Previous work in this department reported 35% of all patients with a psychiatric disorder and 50% of those with a severe mood disorder had experienced a severe event in the 12 months prior to the onset of the symptoms. In this study, the rates obtained for the three main groups for an event with substantial impact were endogenous 48%, depressed cognitions 48%, and general maladjustment 34%. This confirms that events with a substantial impact do not appear to be necessary for the appearance of specific types of depression (Goodyer *et al*, 1985) nor, indeed, are they specific to childhood depression.

Our data demonstrate the importance of the distinction between the mere presence of recent life events and judgements of negative impact. For instance, the frequency of the class of illness events is high for all groups, but the frequency of negative impact is high only for the endogenous depression group.

The question arises whether it is possible to obtain clues or hints about vulnerability factors, current provoking agents in relation to depression in childhood, and facilitating factors.

Lower social class of the child's family does not appear to be associated with more in the way of current provoking agents in the population under scrutiny. However, as the depressive group is being compared with a non-depressed psychiatrically disturbed group in which there is a moderate degree of anti-social behaviour, it may be that the lower social class of the comparison group is masking other associations (which might emerge when using a normal population control group).

The data were examined to identify vulnerability factors. Two possible factors emerged; the first being the personality trait of perfectionism and the second being bereavement in later childhood. Of the 11 different classes of life event, only social relational events, were closely associated with depression (Table 2). Almost equal proportions of the groups become depressed when analysed according to vulnerability agents or provoking factors. More important is whether the absence of either the postulated vulnerability factor or the provoking agent would produce lower rates of depression and the combination of both, higher rates. The proportions change only marginally in relation to these two extreme groups. The pattern was the same when this analysis was undertaken for loss and bereavement in the school years. This would support the notion that loss is an important precursor of depression in childhood but no more so than a perfectionistic premorbid personality or the occurrence of recent life events. Nor would the provoking factors appear to predispose the child to experience an impact in a higher proportion of events. Numbers are insufficient to determine whether the relationship between vulnerability and provoking agents is an additive or an interactional one.

Overall, although the pattern that emerges suggests a variety of environmental adversities are associated with childhood disturbance, relatively few are specifically linked with depression, let alone with a subtype of depression. However, the small size of the depressive subsample, as well as the high frequencies of all forms of disturbance surrounding the non-depressed group, may have obscured some important differences.

Our findings suggest that non-depressive and depressive disturbances in childhood have a number of common origins and that a better picture of the extent of parental psychiatric and psychosocial influences should be achieved by comparison with normal controls.

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Reliability and Validity of Two Self-Rating Scales in the Assessment of Childhood Depression

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A comparison was made of the reliability and validity of two self-rating scales, the Children's Depression Inventory (CDI) and Depression Self-Rating Scale (DSRS), in the diagnosis of depression in 93 children (aged 8–16 years) attending a university child psychiatry department. The two scales were of comparable merit but had only moderate discrimination between depressed and non-depressed children, with each scale having a misclassification rate of 25%. Better agreement was obtained in more verbally intelligent children, irrespective of age. Girls scored higher on the instruments than boys. No significant relationship was found between teacher assessment of classroom behaviour and the two self-rating depression instruments.

Childhood depression has attracted mounting attention over the past decade (Schulterbrandt & Raskin, 1977; Kovacs, 1981; Kazdin & Petti, 1982; Puig-Antich & Gittelman, 1982; Kolvin *et al*, 1984). One important advance has been the development of self-rating instruments designed to screen for affective disorder in childhood (Kovacs & Beck, 1977; Birleson, 1981; Tisher & Lang, 1983). The Children's Depression Inventory (CDI) has been extensively researched in the US (Kovacs & Beck, 1977; Kovacs, 1981; Saylor *et al*, 1984; Helsel & Matson, 1984), but there has been no comparable work in the UK. Although Birleson (1981) developed the Depression Self-Rating Scale (DSRS) in Edinburgh almost a decade ago, there has been only one reported study on its further use in a British population (Firth & Chaplin, 1987). The present study assesses the reliability and validity of the CDI and DSRS as screening measures for affective disorder in childhood and adolescence.

The aims of the research were to ascertain:

(a) the agreement between the CDI and the DSRS
(b) their validity in relation to clinical assessment of depression in children referred to a child psychiatry clinic
(c) the relationship between child self-ratings of depression and teacher ratings of classroom functioning.

Method

The CDI is a 27-item self-report inventory standardised for children between eight and 13 years of age (Kovacs & Beck, 1977; Kovacs, 1981). Each item includes three descriptions of increasing severity, for example, "I am sometimes sad", "I am often sad", "I am always sad". The child is asked to indicate which statement most closely applies to him/her with regard to the past two weeks. Responses are scored on a scale from nought to two where two represents the severe form of the particular symptom. The CDI is amenable to short-form administration (Carlson & Cantwell, 1980*b*) and this method was used in the present study. Some of the wording was modified for use with British children.

The DSRS is an 18-item inventory developed on a Scottish population. Each item comprises a statement and the child is asked to indicate whether this applies to him/her "most of the time", "sometimes" or "never". "Sometimes" scores one, "most" or "never" score nought or two, depending on the positive or negative polarity of the item.

The study was conducted at the Nuffield Department of Child and Adolescent Psychiatry and is part of a larger study – the Newcastle Child Depression Project, the details of which are described in the first paper of this volume (Kolvin *et al*, 1991). A consecutive series of referred children aged between eight and 16 years were asked by their psychiatrist to complete a shortened form of the CDI, comprising 14 items, at their first appointment. The psychiatrist was instructed to ensure that the child was able to read the statements. Where the child's reading ability was inadequate for the task the psychiatrist read each statement to the child who was then asked to tick the statements which he/she thought most applied. Nearly all subjects proved adequate for the task.

On the basis of their scores on the CDI, subsamples were selected for inclusion in the study; within four weeks these subsamples were given the DSRS and the remaining half of the CDI. They were also given the Crichton/Mill Hill Vocabulary Scale as a simple measure of intelligence (Raven *et al*, 1976).

On this latter occasion, the child had a psychiatric interview carried out independently by a senior psychiatrist who had no knowledge of the results of the screen instruments. A description of the standard psychiatric interviews and their reliability and validity are described in an accompanying paper by Kolvin *et al* (1991).

The sample

Three hundred and sixteen referred children were 'screened' but this sample was reduced by 41 as follows. In 22 cases

(7%) the families did not attend the follow-up interview; six children (2%) were already on medication (for epilepsy or diabetes) and in two cases (0.6%) parental data were not available as the children were in care; a further 11 cases (3.5%) declined to be included in a parallel study which involved the dexamethasone suppression test – a test for disturbed endocrine function (Tyrer *et al*, 1991, this volume). This left 275 (90%) of the original 316 cases.

Psychiatric assessments could not be carried out on all 275 cases, so roughly equal numbers of high scorers and low scorers on the CDI were selected for interview. A score of less than nine on the short form of the CDI constituted a low score, a score of nine or more a high score. This cut-off score was based on a pilot study of the CDI on 79 cases comprising 66 residing in hospital units and 13 in a social services residential assessment unit. The mean score obtained on this group was 6.9 with a standard deviation of 4.0. The cut-off score of nine was half a standard deviation above the mean. This cut-off score is similar to that used by Carlson & Cantwell (1980*b*) who found that a cut-off score of eight or more proved a satisfactory criterion for screening children with depressive disorder. In our main study half (49 of 100) of the high scorers and one-quarter (44 of 175) of the low scorers were selected randomly. These 93 cases were studied intensively.

Teacher assessment

Teachers were asked to complete two questionnaires on each of the children included for intensive study:

(a) the Conners Teacher Questionnaire – a 39-item checklist which assesses four factors; conduct, inattentive-passivity, tension-anxiety, and hyperactivity (Conners, 1973)

(b) the Newcastle Educational Questionnaire – a simple five-point rating scale on three areas of classroom attainment; reading/language, number/mathematics and attitude to school work (Fundudis *et al*, 1979). To check reliability the results on these dimensions were analysed by product–moment correlation coefficients. This simple statistic was supplemented by more sophisticated analyses of variance and intraclass correlation coefficients, which estimate more accurately the value of true and error variance. Furthermore, the intraclass correlation gives essentially an average correlation across assessors. Inter-rater reliability was based on ratings from two teachers on a random sample of 20 ordinary junior school children. The product–moment correlation coefficients were 0.62 on reading/language attainment, 0.65 on number/mathematics attainment and 0.61 on attitude to school work. Analysis of variance gave highly significant differences between children but none between raters. Intraclass correlation coefficients were 0.61, 0.65 and 0.69 for reading/language, number/mathematics attainment and attitude to school work respectively. Test–retest reliability was determined on the same sample of children over a three-month interval; this yielded product–moment correlation coefficients of 0.84 on reading/language attainment; 0.76 on number/mathematics attainment and 0.85 on attitude to school work. Analysis of variance again gave highly significant differences between the ratees but not between the raters. Intraclass correlation for reading/language attainment, number/mathematics attainment and attitude to school were 0.84, 0.69 and 0.85 respectively. In the case of secondary school children, the likelihood is that teachers know the children less well than in junior schools and that the reliability of teacher ratings might be lower.

Criterion validity was checked by correlating the teacher ratings on reading/language attainment and children's scores on a standardised reading test (Scottish Council for Research in Education, 1967) administered to the main sample of 93 children by an independent interviewer. The product-moment correlation coefficient was found to be 0.68.

Results

Of the 93 children (46 boys, 47 girls) selected for in-depth assessment, 70 were out-patients and 23 were day-patients or in-patients. Their mean age was 12.5 years and their mean vocabulary quotient was 92.8. This sample can be regarded as representative of the patients attending the child-adolescent service in Newcastle.

Reliability and validity

The two screening instruments – the CDI and DSRS – were evaluated for their internal consistency. Split-half reliability was found to be 0.88 on the CDI (Cronbach's alpha) which compared favourably with Kovacs' finding of 0.86 (Kovacs, 1981) and with other studies (Saylor *et al*, 1984). On the DSRS a split-half reliability of 0.82 was obtained which is consistent with the 0.86 reported by Birleson (1981). The estimates of reliability for the full tests using the Spearman-Brown Formula (Guilford, 1954) were 0.92 and 0.90 respectively.

The CDI was also examined for its stability by administering the two parallel halves of the instrument to the same group of 93 children with a three to four week interval between the two halves. This gave a reliability coefficient of 0.71 which is similar to the test-retest reliability found by Kovacs (1981) for a similar time interval, based on the administration of the full instrument. In addition to demonstrating reliability, these findings suggest that the mood state of the group fluctuated only moderately over that brief span of time which coincided with the initial phase of referral. This is consistent with the findings of other studies, (Kovacs *et al*, 1984; Kovacs, 1985; Testiny & Lefkowitz, 1982). We did not examine for stability of depressive symptoms at a subsequent phase of the condition when greater degrees of fluctuation might be expected to occur (Berney *et al*, 1981).

The independent external criterion for assessing validity was the clinical diagnostic rating for the presence and severity of depression as outlined and defined in the Standardised Psychiatric Interview (Goldberg *et al*, 1970). These issues are fully discussed in a preceding paper (Kolvin *et al*, 1991). The interview was conducted by a senior child psychiatrist who was 'blind' to the screening scores. Kappa coefficients (Cohen, 1960) were used for assessment, and moderate correspondence was found between psychiatric diagnosis and categorisation based on the CDI (kappa = 0.46; maximum kappa 0.85); a similar finding was obtained for the DSRS (kappa 0.42; maximum kappa 0.89). (Maximum kappa is the maximum value of agreement which can be attained in terms of the number of categories and the number of times each rater or judge chooses the category (Cohen, 1960).) Although these kappa coefficients are significant ($P<0.01$) they represent only a moderate concurrent validity. The product-moment correlation coefficient between the CDI and DSRS measures was 0.75.

Teacher assessment and self-rating measures for depression

Ratings by teachers are an invaluable source of information about child dysfunction; teachers' classroom observations were therefore investigated to see if they could provide indicators of childhood depression. No significant agreement was found between the self-rating measures of depression (CDI and DSRS) and the teacher assessments of classroom behaviour (The Conners Scale and the Newcastle Educational Questionnaire). However, children diagnosed as depressed by the clinicians were found to have significantly higher hyperactivity ($P<0.02$) and conduct disturbance scores ($P<0.02$) on the Conners Scale than the non-depressed group.

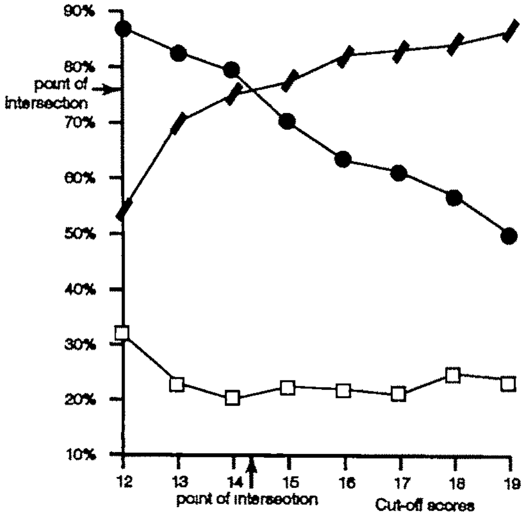

Fig. 1 Percentage rates of sensitivity (●), specificity (/) and misclassification (□) in relation to different cut-off socres on CDI.

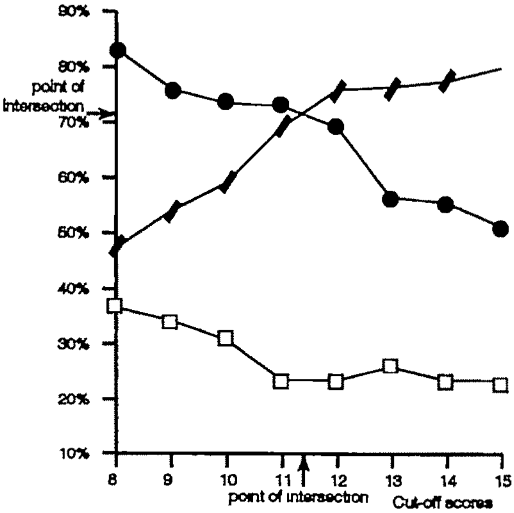

Fig. 2 Percentage rates of sensitivity (●), specificity (/) and misclassification (□) in relation to different cut-off scores on DSRS.

Utility of CDI and DSRS

A way of expressing the validity of screening instruments derives from epidemiology (Diamond & Lilienfeld, 1962; Goldberg, 1972). The extent to which a screening instrument succeeds (or fails) in the accurate identification of true cases in relation to an external criterion can be measured in terms of three related indices: sensitivity, specificity and misclassification.

Sensitivity is the capacity of a screening instrument to select those who have the disorder. It is calculated by expressing the number of subjects reaching the criteria for the disorder concerned using the instrument as a percentage of all the sample who truly have the disorder.

Specificity is the capacity of a screening instrument to exclude those who do not have the disorder. It is calculated by determining the number of subjects reaching the criteria concerned who are subsequently found not to have the disorder.

Misclassification is calculated by expressing the number of false negatives and false positives (i.e. those wrongly labelled) as a percentage of the total number of subjects studied.

In order to obtain a more adequate representation of the efficiency of the two screening instruments, the rates on the above three indices were not limited to the sub-sample of 93 randomly selected children who were interviewed in depth. The rates were determined by recalculating back to the original sample of 275 children who completed the CDI and DSRS. It has been pointed out that it may be necessary to use a stratified sampling strategy if the prevalence of the disorder chosen is below 40%, to avoid unnecessary work (Goldberg, 1986). If this is done, however, it is essential to weight the data back to the original sample of consecutive subjects, otherwise the estimate of specificity will be too low and the estimate of sensitivity will be too high.

Figures 1 and 2 show how these three indices vary in relation to different potential cut-off scores on the full version (27-items) of the CDI and the DSRS respectively. The graphical presentation is based on that used by Mari & Williams (1985). In addition, it includes a misclassification curve. The point at which the graphs for sensitivity and specificity intersect is a simple way of

Table 1
Cut-off scores for optimum discrimination on CDI and DSRS as determined by point of intersection for sensitivity and specificity and misclassification rate

	CDI			DSRS		
	Cut-off score	Intersection of sensitivity and specificity %	Misclassification rate %	Cut-off score	Intersection of sensitivity and specificity %	Misclassification rate %
Whole group	15	77	23	11	75	25
Sex						
boys	14	76	24	11	70	30
girls	16	77	23	14	70	30
Age						
younger	14	75	25	12	72	28
older	15	77	23	11	74	26
Verbal IQ						
brighter	14	90	10	12	80	20
duller	15	65	35	10	68	32

determining the cut-off score for best diagnostic confidence. The corresponding point on the flatter graph below determines the misclassification rate at this cut-off point.

On the CDI the threshold or optimum cut-off score for identifying depression – as determined by the point of intersection for sensitivity and specificity – is 15 (rounded up from 14.5). Using this cut-off, the sensitivity and specificity rates are both 77% and the misclassification rate is 23%. On the DSRS, the optimum cut-off score is 11, which gives a specificity of 73%, sensitivity 75% and misclassification 25%. Other studies, using the DSRS, have reported broadly similar rates based on a cut-off score of 15 (Birleson *et al*, 1987) and 13 (Asarnow & Carlson, 1986).

To examine whether the efficiency of the CDI varied within the sample, the children were divided into the following subpopulations:

(a) male and female
(b) younger (12.7 years of age and below) and older (12.8 years of age and above)
(c) duller (verbal IQ of 90 and below) and brighter (verbal IQ of 91 and above).

Table 1 shows two clear findings. First, the misclassification rates on the CDI are similar for most of the subgroups. The exception is when the subgroup is defined by Verbal IQ; in this case the misclassification is significantly higher ($P<0.001$) for the duller group. A similar picture is found for the DSRS ($P<0.005$). Secondly, the cut-off scores for optimum discrimination, subgroup by subgroup, proved broadly similar, with the exception of separation according to sex. On the CDI, for girls the cut-off is 16 whereas for boys it is 14; on the DSRS, the scores are 14 for girls and 11 for boys.

The clinical interview included an assessment of anxiety as well as depressive symptoms. Clinical ratings of general anxiety were found to correlate significantly with the CDI ($r=0.49$) and DSRS ($r=0.57$) but there were no significant correlations with any specific types of anxiety.

The total scores of the two self-rating measures (CDI and DSRS) did not correlate significantly with age, sex and intelligence (vocabularly quotient) although this differed in relation to the optimum scores. Item analysis was also carried out; for brevity only significant levels are provided. Self-ratings of crying and tiredness proved more common among the girls ($P<0.01$), whereas poor peer relationships were more common among the boys ($P<0.01$). Sadness, lack of enjoyment, and guilt were more common among the older children ($P<0.02$) and somatic complaints and loneliness were more frequent among brighter children ($P<0.05$). One would expect to find some chance associations, but it is interesting to note that the findings are consistent with the notion that certain symptoms vary according to sex and stage of development (Rutter, 1986).

Discussion

Our results indicate a moderate but significant level of agreement between the CDI and the DSRS, and independent diagnosis, based on a Standardised Psychiatric Interview. However, although these two self-report measures are useful in screening children with affective disturbance, they are not precise diagnostic instruments. In brief, each of the screening measures was found to have a misclassification rate of about 25% in a referred clinic population. The optimum cut-off scores were 15 on the CDI and 11 on the DSRS. It is notable that both these cut-off scores are lower than those described by the authors of the CDI (Kovacs, 1981) and DSRS (Birleson, 1981). Such variations are probably due to differences in age range and population studied.

Girls tend to score higher than boys on depression scales (Tisher & Lang, 1983; Asarnow & Carlson, 1986) which is consistent with our findings. This suggests that for girls to be identified as probably suffering from depression on self-rating screening instruments, they require more symptoms or greater severity of these than boys. It is possible that such differences may be a result of the manner in which girls and boys are socialised and in the way they express affect and distress (Izard & Schwartz, 1986; Gerde *et al*, 1988). Nevertheless, to date the designers of the self-rating depression instruments have not suggested different cut-off scores for boys and girls.

Our finding that optimum discrimination on both instruments was obtained on the brighter children is of interest. It has been suggested that within the prescribed age range for specific self-rating questionnaires, younger children are likely to interpret the statements in a more concrete manner leading to an excess of random responses and spurious results (Eysenck & Eysenck, 1975; Firth & Chaplin, 1987). Optimum discrimination on both instruments was obtained with brighter children, which suggests that the efficiency of the two instruments was more influenced by verbal intelligence than chronological age. In other words, within the age range of this sample, it was the duller child rather than the younger child who gave responses leading to higher rates of misclassification. Is this because duller, less verbally able children have a greater difficulty in differentiating between the meanings of the different statements on the self-rating measures or is it because they find it more difficult to introspect and, therefore, to describe their true thoughts and feelings in terms of the self-rating statements of the questionnaire?

Finally, the sex differences in relation to the optimum cut-off score suggest that the use of a single threshold or cut-off score for boys and girls may be unwise. Indeed the point was made some years ago (Saylor *et al*, 1984) that sex and age differences in relation to certain of the self-report measures on depression needed to be systematically addressed. A survey of the literature suggests that, by and large, that same argument still applies.

The self-report measures of depression were found to have disappointing sensitivity and specificity and this limits their clinical utility in a clinic population. However, this is not necessarily what might be found in the general population.

Previous studies have shown a relationship between childhood depression, conduct problems (Puig-Antich, 1982), and poor academic performance (Leon *et al*, 1980). However, in our study, self-ratings by children of depression (on the CDI and DSRS) were not associated with adverse ratings by teachers on behaviour or scholastic performance. Thus, either the children with depressive symptoms were functioning adequately, or any recent dysfunction on their behalf remained undetected by teachers. Unfortunately, the symptom of dysphoric mood was not included in the teacher scales and, therefore, we do not know if the teachers were aware of their pupils' distress. Such awareness by teachers as independent observers is only likely with availability of comprehensive teacher questionnaires geared more specifically to child depression.

The Conners Teacher Questionnaire simply measures specific aspects of observable behaviour that have to be rated as to presence and severity, and does not allow for exploration of the child's feelings and thoughts. Hence, sensitive discrimination between depressed and non-depressed children and identification of concurrent illness may be beyond the scope of a questionnaire administered by teachers.

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The Dexamethasone Suppression Test in Children:
Lack of an Association with Diagnosis

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The dexamethasone suppression test was carried out on 44 children to assess agreement with diagnosis of depression. No significant association was found between suppression of plasma cortisol and depression diagnosed clinically or by cluster analysis.

Over the last decade, the Dexamethasone Suppression Test (DST) has been used to distinguish adult patients with endogenous depression from those with neurotic depressive conditions (Carroll *et al*, 1981; Dam *et al*, 1985). Dexamethasone is a synthetic corticosteroid which suppresses adrenocorticotropic hormone (ACTH) and cortisol secretion in normal subjects. Within a sample of depressed patients, those with endogenous depression, particularly if accompanied by melancholia, have been shown to have raised values of plasma cortisol following administration of dexamethasone 17–24 hours earlier (Arana *et al*, 1985). This is not an all-or-nothing phenomenon; there is a relative resistance to the effects of dexamethasone in depression. Patients who exhibit escape of plasma cortisol following dexamethasone (positive DST) are less likely to respond to cognitive and other non-pharmacological treatments for depression although this is a controversial area (Rush, 1984; Brown *et al*, 1987). The potential value of the DST in child psychiatry is apparent, particularly in prepubertal children.

A few studies of relatively small samples of patients have shown that a clinical diagnosis of endogenous depression in prepubertal children is associated with a positive DST (Puig-Antich, 1980; Poznanski *et al*, 1982; Weller *et al*, 1985; Petty *et al*, 1985; Woodside *et al*, 1987). Others have not found a clear relationship between the diagnosis of depression and a positive DST and are doubtful about the specificity of the test in children (Livingstone *et al*, 1987; Ha *et al*, 1984). As the diagnosis of depression in prepubertal children is difficult to establish, this controversy is not surprising.

The purpose of this study was to examine the relationship between the diagnosis of depression in children and plasma cortisol values following dexamethasone administration, and to compare these with results in non-depressed children.

Method

The design and rating instruments used are described in an accompanying paper (Kolvin *et al*, 1991). This paper is concerned with the first 50 patients that were assessed as part of this investigation. None of these patients were receiving anti-convulsants, hypnotics, antidepressant drugs or any other medication. No patient had any major medical condition or endocrine abnormalities and no child was suffering from anorexia nervosa.

After the initial interview with the child by the psychiatrist, but before administration of the schedules and scales, the parent and the child were invited to participate in the research and asked if a blood sample could be taken in order to provide more information about the diagnosis. It was emphasised that this was a research procedure. If consent was obtained from the child and parent, the parent was asked to give 0.5 mg or 1 mg of dexamethasone to the child according to weight: children weighing 49 kg or more received 1 mg of dexamethasone; those with a weight below this figure received the lower dose. This was to ensure as far as possible that the dosage of dexamethasone given was of the order of 15 μg/kg per patient as used in previous studies with children (Poznanski *et al*, 1982; Robins *et al*, 1983; Petty *et al*, 1985). It would have been ideal if exactly the same dose/kg of dexamethasone was given to all subjects. However, as dexamethasone tablets are only available in 0.5 mg and 1 mg strengths this was not possible.

The child (and parents) were instructed to take the tablet(s) of dexamethasone as near as possible to 10.00 p.m. that evening. The next afternoon at 3.00 p.m. the patient returned to the hospital to have blood taken for plasma cortisol. The reason for choosing 10.00 p.m. was to avoid the interruption in sleep that the 11.00 p.m. administration would have necessitated – stress has been shown to cause increased escape of cortisol following dexamethasone administration (Baumgartner *et al*, 1985; Ceulemans *et al*, 1985). For the same reason, blood tests were taken within one week of the interview with child and parent so as to avoid the stress of first out-patient attendance. Samples were collected in lithium heparin tubes and spun down within two hours of collection.

Analysis was by means of radioimmunoassay (Amerlex Cortisol RIA kit, Amersham International PLC, Bucks,

Table 1
DST status and diagnosis of depression on the rating scales and schedules

Observer scales	% of patients exhibiting cortisol non-suppression (plasma cortisol > 108 nmol/l)	
	Positive score on Rating Instrument	Negative score on Rating Instrument
Standardised psychiatric interview (Depression)	46	56
Standardised psychiatric interview (Anxiety)	48	53
Joint clinical rating	46	56
Kiddie–SADS (Endogenous subtype)	57	43
Weinberg	48	52
Newcastle diagnostic criteria	48	54

Table 2
Relationship between DST results and diagnosis by cluster analysis

Clusters	Cortisol suppression (< 108 nmol/l)	Cortisol non-suppression (> 108 nmol/l)
Endogenous	8	7
Depressive cognitions	7	7
Mixed maladjusted	7	8

Table 3
Relationship between DST results, diagnosis of depression on Kiddie–SADS and patient status

	Cortisol suppression (< 94 nmol/l)	Equivocal cortisol suppression (94–122 nmol/l	Cortisol non-suppression (> 122 nmol/l)	Total
	17 hours after dexamethasone (% of cases showing non-suppression)			
Not depressed	6	1	5 (42)	12
Depressed but not endogenous	6	2	3 (27)	11
Endogenous depression	8	3	10 (48)	21
Total	20	6	18	44

Table 4
Relationship between demographic features and DST results

	Cortisol suppression (< 108 nmol/l)	Cortisol non-suppression (> 108 nmol/l)
Mean age, years (s.d.)	12.7 : (2.0)	12.9 : (1.8)
Sex (male·female)	10 : 12	10 : 12
Pre-pubertal: post-pubertal	11 : 11	12 : 10

UK). The intra-assay coefficient of variation for serum cortisol between 70 and 200 nmol/l was 3% and the inter-assay variation 7%. The child and parent were both asked at the time of the blood sample whether the child had taken the dexamethasone tablet(s) the previous night. If there was doubt whether the tablets had been taken at the recommended time and in the correct dosage the test was repeated and the second result taken as the correct one. This only occurred on one occasion.

Of the first 50 patients entering the study, 44 completed the test satisfactorily. With the remaining six, two children refused venepuncture, in three the blood specimen was broken in transit or in the laboratory, and in one subject blood samples were not taken because the correct procedures for the test were not carried out and it was not possible to repeat these.

The original intention in the study was for 100 subjects to be examined by the DST. To determine the usefulness of this test the results were analysed after half of the intended sample had been seen. The results presented below persuaded us that further testing was unlikely to be fruitful.

Results

Of the 44 patients, 22 did not suppress plasma cortisol after dexamethasone (cortisol > 108 nmol/l) 17 hours after administration of dexamethasone. The relationship between the diagnosis of depression on the various instruments and the DST results is indicated in Table 1. The criteria for a positive score on the rating instrument are those of the designers of the scale concerned. Table 2 shows the results of the DST in children diagnosed according to the cluster analysis described in an accompanying paper (Kolvin *et al*, 1991).

Although there is a hint of patients with endogenous features to display non-depression of plasma cortisol, there is no significant difference between DST status and diagnosis of depression whichever set of diagnostic criteria is used to establish this.

As the appropriate 'cut-off' level for determining suppression of serum cortisol following dexamethasone administration in children is not known for certain, the post-dexamethasone cortisol levels were correlated with the diagnosis of depression on all the instruments used. The correlations varied from $r = -0.19$ on the SPI (Anxiety) to $r = +0.23$ on the Kiddie–SADS (Pearson correlation). None of the correlations were significant.

We used the criterion value of 108 nmol/l for plasma cortisol because previous work has shown that best discrimination between endogenous and non-endogenous adult depressive patients was achieved at this level (Holden, 1983). As the interassay variation for measurement of plasma cortisol in this laboratory was 7% it can be argued that children with cortisol levels between 94 and 122 nmol/l have equivocal suppression of cortisol. The relationship between diagnosis of depression and cortisol suppression according to this stratification is illustrated in Table 3. The demographic details of the children involved according to the cortisol suppression status are listed in Table 4.

In addition, the relationship between DST status and symptoms was examined by comparing the DST results with the presence or absence of the 23 major symptoms identified during the interviews with child and parents, as well as with age, sex and presence or absence of pubertal changes according to Tanner's criteria (Tanner *et al*, 1965). The only symptom that significantly separated dexamethasone suppressors and non-suppressors was the summated obsessive–compulsive score (higher in the non-suppressors). This could very well be a chance finding in view of the number of factors examined.

Discussion

The results show that there is little relationship between the effects of dexamethasone on plasma cortisol levels and the diagnosis of depression, however this is established. There is a trend for cortisol non-suppressors to be endogenously depressed but this is barely shown by the existing schedules for measuring depression in children nor by the classification according to cluster analysis.

What other factors could explain these results? It is theoretically possible that some of the patients with high cortisol levels did not actually take their dexamethasone tablets on the evening of the test and therefore the results were artificially high. We do not believe that this is likely. Each patient was asked whether he had taken his dexamethasone tablet(s) the night before and at what time, and this information was confirmed with the parent. The child was aware that the blood test would not be taken unless the tablet(s) had been swallowed so there was little incentive to mislead the doctor. After extensive interviews with both the parent and child, a good alliance had been established between the doctor and patient and the importance of taking the tablet was emphasised.

Measurement of dexamethasone concentration in the blood sample was considered but was not performed. At the time the survey was carried out, assay methods to detect dexamethasone at low concentrations were complex and had limited sensitivity (Chan *et al*, 1980). Since then, reliable assays have become available and both false positive and false negative results may result because of the varying bioavailability of dexamethasone (Meikle *et al*, 1975; O'Sullivan *et al*, 1989). This being said, Hindmarsh & Brook (1985) have shown that a dose of dexamethasone lower than used in this study (0.3 mg/m^2) was effective in suppressing serum cortisol in all six children given this dose. The lowest dose received in our study was 0.34 mg/m^2.

We used a modification of the recommended procedure for carrying out the DST in out-patients. In adults, the dexamethasone tablets are normally administered at 11.00 p.m. on the night before the test is carried out and blood is taken at 4.00 p.m. the next day. The sleep-wake cycle of children and adolescents is substantially different from adults and it is known that the diurnal variation of cortisol secretion is closely related to this cycle (Sherman *et al*, 1984). We therefore asked the parent to administer the tablet at 10.00 p.m. and blood was taken at 3.00 p.m. the next day. Hindmarsh & Brook (1985) have shown that suppression of serum cortisol is achieved in prepubertal children when dexamethasone is administered at 10.00 p.m. Because the circadian rhythms of children vary from adults, we selected 3.00 p.m. for measurement of plasma cortisol. It has been shown that an interval of 17 hours between administration of dexamethasone and estimation of plasma cortisol provides most satisfactory discrimination between suppressors and non-suppressors (Carroll *et al*, 1981; Weller *et al*, 1985).

Non-suppression of cortisol secretion following dexamethasone has been shown to correlate directly with age in adult subjects (Feinberg & Carroll, 1984; Rosenbaum *et al*, 1984). In virtually all the prepubertal children we used a dexamethasone dose of 0.5 mg. This dose was found to provide best discrimination between depressed and non-depressed prepubertal children in a recent study (Pfeffer *et al*, 1989). Older patients with a weight of more than 49 kg were given two tablets of dexamethasone (1 mg) in order to achieve a similar dose/kg to the younger children. Because most of the children were only a little over 50 kg, the mean dose (s.d.) of dexamethasone received by the children who took 1 mg of dexamethasone was 17.8 (2.4) μg/kg, whereas those who had the 0.5 mg tablet received 14.2 (2.2) μg/kg, a significant difference (F-ratio 13.6; $P = (0.001$ – analysis of variance)). The mean 17-hour cortisol value (s.d.) was 164 (179) for the 33 children who received 0.5 mg of dexamethasone and 107 (79) for the 11 who received 1 mg. This difference is not significant (F-ratio 1.02; $P > (0.1$ – analysis of variance)), and is partly accounted for by an extreme outlier in the lower dosage group (860 nmol/l). Indeed, the mean dose of dexamethasone (s.d.) received by those who had cortisol values above 108 nmol/l of serum cortisol was virtually identical to the suppressors (15.6 (2.9) μg/kg c.f. 15.1 (2.9) μg/kg).

The criterion level for determining an abnormal dexamethasone suppression test remains a subject for controversy. In theory, radio-immunoassay methods should be more sensitive at detecting plasma cortisol than competitive protein-binding methods with consequent reduction of the cut-off level for determining an abnormal result. In practice this is not the case (Ritchie *et al*, 1985). Many laboratories accept the criterion value of 138 nmol/l (5 g/dl) as the limit for non-suppression of plasma cortisol. Recent work from the same laboratory where our test was carried out showed that the diagnostic confidence of the test was optimal when a criterion value of 108 nmol/l of plasma cortisol was selected in adult patients (Holden, 1983) so we have selected this cut-off value.

Although the numbers are not great, our study does not indicate that the DST is more accurate in distinguishing depression in adolescents than in prepubertal children. There is the merest suggestion that endogenous depression, defined according to Kiddie-SADS, is associated with cortisol non-suppression in the pubertal children. Seven of the 10 children rated as endogenous were DST positive, whereas 4 of the 11 children with insufficient symptoms of endogenicity also showed failure to suppress plasma cortisol. With the prepubertal children there was no relationship at all between the diagnosis of endogenous depression and DST status with equal number of children occurring in all four groups in the $2\times2\chi^2$ table.

Although some studies of the DST in prepubertal children have shown the test to be of value in identifying patients with depression (Puig-Antich, 1980; Poznanski *et al*, 1982; Weller *et al*, 1985) some recent investigations have shown the test to have much lower specificity. Petty *et al* (1985) found in a study of 30 pre-pubertal children admitted to a psychiatric hospital that five out of six patients who had no evidence of depression were DST positive. Livingstone & Martin-Canicci (1987) also raised doubts about the specificity of the test, finding that patients with separation anxiety also had a high incidence of cortisol non-suppression.

Our results indicate that the DST is not of great value in identifying depression in children attending an out-patient clinic. They show a high rate of non-suppression of plasma cortisol irrespective of the diagnosis of depression however this is classified. This study supports the conclusions of a review of the status of the DST in children that its validity as a diagnostic test remains in doubt (Leckman, 1983).

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Review Article

Infant Psychiatry: Its Relevance for the General Psychiatrist

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The study of infancy can provide us with new models for the genesis and treatment of psychiatric disorders. It allows us to observe development and can elucidate the contribution the internal and external world make to mental health and disorder. It can also help to define and describe developmental pathways which may be instrumental in creating a resilient or vulnerable adult.

Infant psychiatry is a relatively new, but rapidly growing, subspecialty in child psychiatry dealing with children up to 36 months. While 20 years ago few clinicians were interested in the psychiatric clinical care of infants (e.g. Spitz, 1945, 1946; Burlingham & Freud, 1943; Bowlby, 1951, 1958; Fraiberg, 1959; Provence & Lipton, 1962; Winnicott, 1965), there are now several well organised programmes in North America which provide special training with infants for Fellows in Child Psychiatry. This interest is also reflected in a wealth of recent texts (Call *et al*, 1983, 1984; Stern, 1985; Minde & Minde, 1986; Emde, 1987; Cramer, 1987; Sameroff & Emde, 1989) as well as national and international journals and organisations which deal with the emotional problems of infants and their families.

Why has the psychiatry of infancy commanded so much interest? Why, according to Tanguay (1989) in a recent editorial in the *Journal of the American Academy of Child and Adolescent Psychiatry*, is it seen as "The Hot Topic of the Future"?

We propose that the recent growth in the status of infant psychiatry is related to sociological changes in Western society and the dramatic increase in theoretical knowledge of normal and abnormal psychological development of infants. This has led to more sophisticated assessment procedures and a more differentiated range of diagnoses in these young children. The possible impact developments in infancy psychiatry may have on general psychiatry are discussed at the end of this paper.

The scientific underpinnings of infant psychiatry

The growing interest in the emotional care of infants can be attributed to a number of factors. Parents have always been fascinated with the growth and development of their babies and have been eager to obtain guidance on how to handle their young children. Recent social changes have further increased public awareness and interest in the early emotional life of infants. One such change has been the growing number of well educated working mothers demanding high-quality day care for their young children.

A further impetus for infant psychiatry has come from the dramatic increase in our theoretical knowledge of normal and abnormal psychological development of infants during the last decade. Among the wealth of new data, there are four issues that have been specially important for the development of infant psychiatry: infant competence, continuity v. discontinuity of human development, the concept of internal representation, and temperament.

Infant competence and its components

Infant testing has traditionally given us knowledge of what the developing infant and young child may be able to do at different ages (Bayley, 1969). However, it has become clear that, in addition to cognitive and motor abilities, the newborn infant has considerable competence in attending to, and perceiving, affective signals as well as regulating his/her state and motor activity, and communicating signs of that state (Brazelton *et al*, 1974; Stern, 1985; Aslin, 1987; Berg & Berg, 1987). These capacities appear to have the function of 'seducing' the carer into developing a relationship with the infant (Kaye, 1982). Stern *et al* (1983) on examining the development of the relationship between baby and environment, concluded that the infant has a "prewired knowledge of the world". This is an evocative overstatement which can be understood to mean that infants are biologically programmed with capacities ideally suited for a selective involvement with other human beings – for example, young infants will selectively attend to an organised rather than a scrambled facial visual gestalt. These preprogrammed, innate capacities interact with capacities of the carer to create a 'transactional field' in which development can then take place. This means that early development and learning depend to a much greater extent than was previously thought on events and event structures that are embedded in the relationship with a carer (Kaye, 1982; Stern, 1985).

This underlines two important principles. First, one can assume that during the formation of any pattern of relations there are predictable sequences of observable interactive events which can be confirmed by an outside observer. This implies that relationships, as well as any disturbance in such relationships, are based on real rather than imagined events (Bowlby, 1982; Sroufe *et al*, 1983). To do justice to the complexities of development it follows that the sequences of formally describable competencies which are observed at different developmental stages require explanations in terms of underlying processes or 'mechanisms'. Our usual differentiation between the physical, cognitive, emotional, and social aspects of development may be adequate to describe the capacities of an infant. They are quite inadequate, however, to give an intimation of the underlying processes which allow for the development and demonstration both of skills, such as language use, and relationships.

The other principle highlighted by the work of Kaye and Stern is that despite the profound interdependence of cognitive, emotional, and physical development, specific events at certain times in early life may influence some areas of an infant's development more profoundly than others. For example, insensitive and inconsistent care during early infancy affects emotional and social development more pervasively than it affects physical or cognitive ability (Ainsworth *et al*, 1978; Tizard & Hodges, 1978; Arend *et al*, 1979; Rutter, 1981; Belsky *et al*, 1984; Egeland & Farber, 1984; Grossmann *et al*, 1985; Lamb *et al*, 1985; Hodges & Tizard, 1989).

Continuity v. discontinuity in development

Beginning with the work of Emde *et al* (1976) we have learned that infants undergo well demarcated biologically determined cognitive and emotional reorganisations and behavioural transformations at specific ages (McCall, 1981). Thus at predictable times in an infant's life there occur significant reorganisations of his/her behaviour. For example, at six weeks an infant will suddenly show a social smile, that is, respond to people by smiling. While the specificity of this response is unclear, there is no question that such a smile greatly increases the infant's contribution to the social interactions with his/her environment and consequently can bring about a significant change in the perceptions others have of him/her.

While the appearance of the social smile seems to highlight the 'hatching' of the baby from an inwardly focused organism to a true social being, scientists have identified two further early life periods during which biologically programmed behavioural reorganisations take place. At 9–12 months, infants suddenly utilise their cognitive and fine motor skills to advance significant adaptive and social behaviour; for example, they now look for a toy behind the screen. This tells us that they remember what happened before and are ready to engage in more advanced forms of socialisation.

The final developmental reorganisation of infancy occurs from 18 months onward and is characterised by the increasing predominance of verbal communication and the emergence of symbolic play (McCall, 1981). The more skilful use of language is associated with the ability to recognise oneself in the mirror (Amsterdam, 1972) and in photographs and films (Lewis & Brooks-Gunn, 1979). However, here again, as in other biologically prepared reorganisations, the appropriate acquisition of all these developmental skills is intimately dependent upon the quality of the caregiving environment.

It should be emphasised that these apparently biologically programmed behavioural transformations have powerful effects on the infant's social environment, as an infant can appear to behave quite differently after each transformation. At the same time these biological changes can create the appearance of behavioural discontinuities since a previously 'abnormal' youngster can suddenly be transformed into a 'normal' and apparently well adjusted child.

Modifications in the parent–infant relationship resulting from such transformations usually reflect both the infant's and parent's new behavioural repertoires. The latter are based on the carer's subjective interpretation of new behaviour or intentions of the infant. These interpretations, according to traditional psychoanalytic thinking, follow pathways which were moulded by the carer's own internal structures or representations, and reflect the sum total of the personal compromise between his/her drives and defences as well as social and cultural traditions operating at this particular time (Bowlby, 1982). Psychoanalytic theory has been helpful in establishing constructs which can be used to explore a carer's behaviour retro-actively. However, until recently such constructs had not been validated empirically. This has begun to change owing to the growing body of research in attachment which has led to the empirical measurement of "internal representation" of relationships (Bretherton, 1985).

Internal representations

The sense of security or attachment may be achieved initially by a carer's physical holding a young infant.

By four to six months, however, the 'holding' may be done on the knee or across space through the eyes or the voice of the parent (Brazelton *et al*, 1974). By 10–12 months just looking or sharing an affect may be sufficient to convey to the child that things will be safe and well. Therefore, the process of developing a secure rather than an insecure attachment seems to begin with a carer who is sensitively responsive to an infant's cues and signals of distress. It continues through a more reciprocal relationship in which the infant is an increasingly active participant in seeking proximity to and comfort from the parent (Bowlby, 1982). This suggests that the behavioural transformations of the infant, while they initially seem to produce a discontinuous type of developmental sequence, in fact provide a cohesive system within which the baby and the carers negotiate the regulation of the baby's overall behaviour. It also confirms that it is actual interpersonal events which make up the matrix from which we develop our future internal representations of self and others.

Internal representations are autonomous inner organisations (Sroufe & Fleeson, 1988) which are also called 'internal working models'. This was the term initially used by Bowlby (1973), who stated that "in the working model of the world that anyone builds, a key feature is the infant's notion of who his attachment figures are . . . and how they may be expected to respond" (p. 203).

This means that a working model is the assembly of many specific types of interactions into a larger representation of a person's behavioural and cognitive repertoire associated with certain conditions. Working models, therefore, will gradually change as new experiences are added or old ones are reorganised (Main *et al*, 1985; Stern, 1985). Nevertheless, there is much evidence which speaks for the propensity for stability of these working models. Thus once these models are established, individuals tend to select partners or form relationships that perpetuate existing working models, even though this may happen unconsciously (Sroufe & Fleeson, 1988). Children and adults alike tend to elicit input confirming their pre-existing models and ignore countervailing information. This tends to make these working models self-stabilising and resistant to change and is an important reason why they may be important predictors for future relationships and tend to be transmitted across generations (Main *et al*, 1985).

While much work has yet to be done to clarify the development and long-term stability of working models or internal representations in individuals, recent studies in these areas have brought about a potential meeting of minds among those who want to understand the life of an infant from an observational point of view and those who see only the clinical or intrapsychic perspective of the infant (Stern, 1985). In fact, the recognition of the development and course of internal representations has given us a method which may allow us to use our clinical knowledge of an infant to enhance our understanding of the observations of normal infants and to explain how the clinically disturbed infants can build up their subjective lives and how later disorders may be linked to early experiences.

Temperament

Temperament and its contribution to the 'good' and 'poor' fit between a parent and a young child has long been debated among mental health specialists. One part of this debate has centred around the understanding of the construct of temperament, well illustrated in a recent round-table discussion by Goldsmith *et al* (1987). Some of the participants felt temperament to be an inherited personality trait with a high degree of stability while others saw it as easily modifiable. For example, Vaughn *et al* (1987), re-examining four large studies, found that a high maternal anxiety level, low self-esteem, and aggression and suspicion before delivery were all found to predict later 'difficult' infant temperament ratings.

There is overall agreement, however, that temperamental dimensions are expressed in behavioural tendencies rather than in discrete behavioural acts. Different temperamental dimensions have been described. Thomas & Chess (1977) identify nine dimensions, such as activity level, persistence and predominant mood, while Rothbart (1981) includes fear, distress to limitations, and duration of orientating in her list. Buss & Plomin (1984), on the other hand, identify only emotionality, activity and sociability as temperamental traits.

However, there is general consensus on the biological underpinnings of temperament and the notion that the link between temperament and behaviour becomes more complex as the child matures. For example, even Vaughn *et al* (1987) discuss the possibility of either a genetic or a biochemical transmission of temperamental characteristics from mother to infant. Nevertheless, most researchers agree that the expression of temperamental traits can be significantly modified by environmental opportunities and expectations. A good example is a study by Washington *et al* (1986) in which 74 small premature infants were given temperament assessments at 3, 6, and 12 months. Thirty-three per cent of these mothers changed the temperamental category of their infants from easy to difficult or vice versa between 6 and 12 months. Interestingly, infants who were described as difficult at six months but easy at one year had mothers who were rated more positively on 19 out of 19 caretaking categories during home observations. Their infants also increased their percentage of observed smiles. This suggests that these adept and sensitive mothers were able to modulate their infants' temperamental characteristics because they saw the initial difficult temperament as a challenge rather than a burden.

Differences in the definition of temperament have influenced its perceived impact on overall psychological adjustment and development. For example, Thomas & Chess' designation of a specific cluster of temperamental dimensions as 'difficult' suggests that children with these characteristics are more likely to develop a behaviour disorder because those around them do not develop a 'good fit' (Graham *et al*, 1973; Maziade *et al*, 1985). Likewise, Minde *et al* (1989) recently found that in a group of 64 small premature infants, a difficult temperament at 12 months significantly predicted an abnormal score on a behaviour screening instrument at four years, but not the presence of a psychiatric disorder. As temperament scales and behaviour screening instruments are usually filled in by parents, the concordance between these ratings may be somewhat compromised and the ratings obtained may reflect parental perceptions of these infants rather than actual infant characteristics. Also, there is strong evidence that clinical deviance in young children is usually a reflection of multiple factors, of which most are related to shortcomings within the caretaking environment and not to the biology of the child (Sameroff, 1986).

Disorders of infancy: classification

Abnormal behavioural conditions of infancy can be roughly divided into two groups: problems which reflect primarily a disturbance in the current relationship between the infant and the caretaking environment, and symptoms which are early indicators of later disturbances within the infant. The latter often have an important biological component.

While the term 'relationship' is not used in DSM-III-R (American Psychiatric Association, 1987), the official classification of psychiatric disorders in North America, some conditions are indirectly acknowledged to be based on a disturbed relationship between the infant and his/her carers. Disorders of attachment, eating, sleep and adjustment fall under this category. Each of these conditions is defined by listing specific combinations of symptoms deemed essential for the diagnosis. Many of these symptoms, however, such as the failure of a young child to initiate or respond to social actions, reflect a compromised relationship.

Some infant mental health specialists reject the constraints imposed by DSM-III-R. For example, Sroufe (1989) and Anders (1989) postulate that relationships in infancy require adequate and appropriate regulation between partners to function well. Disorders are therefore, in their view, best described as an over-regulation of the carer–infant relationship. Deviance is therefore not seen as a particular set of abnormal types of behaviour as it is in the DSM-III-R classification but defined by the dynamic properties of the relationship. These include, among others, the range, modulation, and attunement of shared parental affects, the joy contained in the infant–carer interactions, and the parents' general sensitivity to the baby. Each, in turn, has to be evaluated in the context of the child's developmental and socioeconomic circumstances. As we have not yet developed acceptable definitions for many of these dynamic properties, for example do not quite know what an adequate attunement or an appropriately shared parental affect implies, this form of diagnosing infants cannot be recommended at present.

There is another distinction between the diagnoses proposed by Sroufe and Anders and those based on DSM-III-R criteria. In the DSM-III-R manual, disorders are defined by the presence or absence of particular symptoms while Sroufe and Anders classify relationship problems as perturbations, disturbances, or disorders. In particular, they define 'perturbations' as transient disruptions in the context of a generally satisfactory family and social support system, brought about by events like a short illness, a move, reactions to weaning, or the birth of a sibling. 'Disturbances' are said to be due to a continuing insensitive regulation in interactions and hence are basically risk factors. They affect one domain of development and, at the time of examination, should have been present between one and three months. When a disturbance persists, it can lead to a disorder. Here, inappropriate patterns of interaction are fixed, developmental milestones disrupted, and regulatory dysfunction is seen across several developmental domains.

These concepts are clinically challenging and may well provide a basis for long-term outcome studies of clinical infant populations. For example, one may examine the question of whether and how an infant's capacity to regulate his/her own internal states (e.g. sleep, hunger/satiety, distress) relates to the quality of the caregiving environment. Given that disorders of feeding, attachment, and sleep are often diagnosed during the first year of life when the infant's adaptation is so dependent upon the quality of caregiving, and given that carers carry the psychological burden of the relationship during early infancy (Sameroff, 1977), such a study might help us to understand and clarify what contributes to the development and perpetuation of a perturbation or disturbance in early nurturing. It may also tell us what factors need to be present to have a perturbation develop into an attachment disorder, growth failure, or chronic sleep disorder.

Attachment disorder

An attachment disorder is characterised by a distortion of the bond of affection which normally develops between infants and carers. Some infants show markedly disturbed social relatedness towards adults, ranging from indiscriminate sociability to persistent failure in initiating or responding to most social interactions. Many infants who were admitted to hospital before liberalised visiting practices or who lived in institutions and were diagnosed to suffer from 'hospitalism' (Spitz, 1945) would qualify for this diagnosis today. The disorder, therefore, is invariably associated with varying degrees of inadequate care, including persistent disregard for the child's basic emotional and physical needs, or repeated changes of primary carers.

The degree to which an insecure attachment as defined in the previous section and an attachment disorder are synonymous is still an open question. In discussions which surround the formulation of criteria for the forthcoming DSM-IV classification, an insecure attachment is seen only as a possible precursor of the disorder, and it is acknowledged that many insecurely attached infants do not seem to develop later psychiatric difficulties (Shaffer *et al*, 1989). On the other hand, a number of controlled studies have indicated a high co-morbidity between insecure attachment in infancy and a number of well defined infant disorders (Matas *et al*, 1978; Lewis *et al*, 1984; Erikson *et al*, 1985). For example, about 90% of maltreated infants (Crittenden, 1987) have an insecure attachment as measured by the paradigm developed by Ainsworth *et al* (1978).

If one adds the fact that about 35% of infants in a wide variety of cultures are insecurely attached to their mothers (Van Ijzendoorn & Kroonenberg, 1988), one can well imagine the importance attachment principles have for the work with infants and their families. This is further underlined by the recent finding by various investigators that there is an impressive correspondence between the security of attachment of a mother and her infant. Thus about 75% of mothers who are rated as having an insecure attachment relationship with their own mother have children who are also insecurely attached (Main *et al*, 1985). This suggests that we can expect to see a significant intergenerational continuity in this aspect of interpersonal relationships. Disturbances therefore are unlikely to remit spontaneously but often require active intervention.

Failure to thrive

Failure to thrive (FTT) is another relatively common problem, estimated to represent 1–5% of all paediatric hospital admissions of infants (Hannaway, 1976; Berwick, 1980). FTT is characterised by a deceleration in the rate of weight gain from birth onward and by weight being less than expected for length, and is associated with varying degrees of malnutrition. The latter, in turn, affects a variety of physiological systems and is believed to contribute to the FTT infants' impairment in cognitive, motor, and socio-emotional development. Some infants with FTT have associated feeding disorders such as food refusal, pica, or rumination.

Even though controversy still surrounds the definition of FTT, an increasing number of controlled studies show that both organic and environmental factors contribute to the aetiology and perpetuation of growth failure in young children (Bithoney & Dubowitz, 1985; Casey, 1988; Benoit *et al*, 1989). This suggests that the traditional dichotomy, organic v. non-organic, is both unfortunate and misleading (Sills, 1978; Holmes, 1979; Homer & Ludwig, 1981; Berwick *et al*, 1982; Woolston, 1985). It also suggests that regardless of possible organic causes, it is essential to examine factors within the caregiving environment that might contribute to the infant's growth failure. Such 'environmental' factors might include a maternal attachment disorder (Benoit *et al*, 1989), maternal psychopathology (Shapiro *et al*, 1976; Woolston, 1983), parental substance abuse (Bruenlin *et al*, 1983), family overcrowding and poverty (Drotar, 1985), the quality of family and marital relationship (Belsky *et al*, 1984; Benoit *et al*, 1989; Drotar & Malone, 1982) and lack of an adequate social support system (Pollitt & Leibel, 1980; Woolston, 1983; Bithoney & Newberger, 1987).

Despite the development of many therapeutic programmes, families of FTT infants have been described as difficult to treat. While removing these infants from their caregiving environment often helps improve their calorie intake, eating habits, and growth dramatically, it does little for bettering the relationships with their carers. For this reason, the clinician should include a comprehensive assessment and treatment of distorted representations or working models of these infants' carers, together with the more traditional therapeutic approaches which address dysfunctional family relationships and parent–infant interactions, or the parents' own psychopathology.

Sleep disorders

Sleep disorders affect 15–20% of children aged 12–36 months (Richman, 1981). They present as an excess of deficit in sleeping time, a disturbance in sleep patterns, or difficulties in settling down to sleep which have lasted for more than three months, and occur five or more nights a week. A severe sleep disorder is characterised by waking three or more times a night, or waking for more than 20 minutes during the night, or taking more than 30 minutes to settle at night, or being taken into the parents' bed (Richman, 1981). Sleep disorders disrupt family life (Bax, 1980) and are often associated with other current and later behavioural disturbances (Richman *et al*, 1982). They seem to occur in children who show general signs of poor behavioural organisation (e.g. have experienced perinatal problems and were colicky for more than 10 weeks) or who have carers who are ineffective at consistently setting limits with their infants (Minde, 1988; Minde *et al*, 1991).

About 70% of these poor sleepers and their families can be helped by simple, direct instructions to parents aimed at providing the infant with a consistent bedtime routine, which may include specific rituals. The use of a transitional object at bedtime such as a favourite toy or blanket and the gradual 'weaning' from the presence of the parent also often helps these infants to 'regulate' their own internal states, that is, teaches them to soothe themselves and fall asleep on their own. These simple interventions appear less helpful to those parent–infant dyads whose problems indicate more serious and pervasive psychological conflicts, including distorted perceptions and interpretations of the infants' behaviour and communication. Nor are they useful with families who show overall chaos and disorganisation in their social functioning (Minde *et al*, 1991).

Aggression

Another frequent reason for referral to infant clinics is aggression, especially in older infants. These toddlers can be defiant, provocative, or oppositional, directed at one particular carer or sometimes generalised to all carers and other children. Often these children and their parents are caught up in maladaptive transactional patterns characterised by mutually unsatisfying and negative interactions and little, if any, mutual enjoyment. Once again, intervention aimed at modifying the parents' mostly negative perceptions of the child, together with parent guidance on issues of limit setting, consistent discipline, and the provision of a structured routine for the child seem to be most helpful.

Adjustment reactions

Adjustment reactions in infancy can manifest themselves in a variety of ways, ranging from temporary feeding and sleep problems to episodes of increased fussiness and crankiness. Removing the source of stress or distress often helps to improve the child's symptoms. Frequent physical problems in infancy such as ear infections and teething can alter the child's usual sleep and eating patterns and can lead to adjustment reactions. However, reactions to changes in the caretaking environment (e.g. a period of fussiness following placement in day care or other separation from the carer, or increased crankiness or emotional withdrawal in response to a carer's temporary emotional unavailability created by depression) should also be viewed as adjustment reactions to stress. Parenthetically, Sroufe (1989) and Anders (1989) are likely to label these adjustment reactions as 'relationship perturbation' (see above).

Post-traumatic stress disorder

There is some controversy about whether or not post-traumatic stress disorder (PTSD) should be used as a diagnostic category for infants. Because of their limited cognitive capacities, it would seem unlikely that infants under 18 months of age could exhibit symptoms suggesting PTSD. Nevertheless, there are reports in the literature which claim to support the validity of such a disorder. For example, Chatoor (1987) described a special feeding disorder of infants who have been dependent on ventilators and been fed parenterally for at least two months in a neonatal ICU intensive care unit. Clinically, this disorder may take the form of a pervasive food refusal, associated with behavioural responses reminiscent of panic attacks in adults. Chatoor termed this syndrome 'post-traumatic feeding disorder' and felt that it was caused by a combination of frequent intubations with accompanying repeated traumatisation of the oral cavity and lack of practice in swallowing and sucking. This, she felt, prevents these infants from developing a proper sucking and swallowing sequence and creates an acute aversive reaction to food. While the precise aetiology of this disorder is not yet stablished, behaviour modification therapy involving progressive desensitisation, positive reinforcement for adaptive eating behaviour, and concomitant raining of the carers in the behavioural techniques are often the most effective and rapid therapeutic ools to help these infants.

Another type of PTSD relates to the sequelae of physical or sexual abuse. Terr (1988) has presented well documented case studies which described stereotyped play behaviour of young children mimicking reliably documented traumatic events which occurred before 18 months of age. Other children may develop highly unusual symptoms such as exhibitionism, compulsive public masturbation, regressive behaviour such as faecal and urinary incontinence or smearing of faeces on walls and furniture following sexual abuse. They may also show 'catastrophic' reactions (e.g. hiding behind furniture, shaking, and crying uncontrollably after accidentally spilling a glass of milk following physical abuse) or have nightmares and sleep problems, fears, anorexia, or emotional withdrawal or agitation. Little is known about psychiatric treatment of young children suffering from PTSD, but a combination of desensitisation techniques and more conventional forms of psychotherapy may be helpful.

Pervasive developmental disorder

This disorder is characterised by a qualitative disturbance in the infant's verbal and non-verbal communication skills, reciprocal social interactions and imaginative activities. Such children, who are also called 'autistic', show four main abnormalities: (a) a qualitative impairment in reciprocal social interaction manifested by a marked lack of awareness of the existence or feelings of others, and an absence or severe impairment in seeking comfort, imitation, social play and the capacity to make friends with peers; (b) a qualitative impairment in verbal and non-verbal communication which may be shown by the total absence of a mode of communication (such as communicative babbling, facial expression, gesture or spoken language) or markedly abnormal non-verbal communication (e.g. in the use of pervasive gaze aversion, eye-to-eye facial expression, or body posture) to initiate social interactions; (c) an absence of imaginative activities (e.g. play acting), and marked abnormalities in the production, form and content of speech, including rate, intonation and stereotypies; and (d) a markedly restricted repertoire of activities and interests. The latter is shown in the frequently observed stereotypic body movements, persistent preoccupations with parts of objects, marked distress over changes in trivial aspects of the environment, unreasonable insistence on following routines and a severely restricted range of interests (Volkmar & Cohen, 1988).

The onset of a pervasive developmental or autistic disorder is often difficult to specify, especially at an early age, or when parents have not had experience with other infants. In many cases there are associated symptoms such as an uneven profile of specific developmental skills or moderate mental retardation. A wide range of perinatal conditions associated with brain damage (e.g. rubella and the fragile X syndrome) as well as some forms of severe neglect and abuse can also present with symptoms similar to those seen in autistic children. For example, such children may have no interests or imaginative activities and appear impaired in reciprocal social interactions.

For these reasons, the diagnosis of pervasive developmental disorder is often difficult to make in early life. If it is suspected, a thorough developmental assessment, including speech and language evaluation as well as a comprehensive assessment of the caregiving environment and the carer–infant relationships can often assist in the differential diagnosis (Volkmar *et al*, 1985).

Other conditions

There are many other situations which can affect the behavioural competence of an infant. Congenital anomalies or disabilities such as blindness, deafness, and cerebral palsy impose dramatic distortions on an infant's experiences and interactions with carers. Furthermore, very small premature or otherwise medically compromised infants may spend many weeks in intensive care units or on special infant wards. They are often subjects to painful medical procedures and their parents may have few opportunities to provide them with experiences which foster a secure attachment or a sense of mastery and autonomy. As such infants often have many 'professional carers', the infant psychiatrist as part of the multidisciplinary management of these infants can play an important role in providing them with more appropriate developmental experiences during and after their hospital admission and help their parents to retain an active sense of parenthood (Minde & Stewart, 1988).

Early signs of other disorders such as hyperactivity or mental retardation will also manifest themselves during infancy. For example, hyperactive youngsters may start out as persistently colicky infants who are later poor sleepers, and unable to engage themselves in appropriate play activities. Children with developmental delay, by three to six months, to take another example, will also often present as slow and difficult feeders (Minde *et al*, 1988).

It should be stressed again that any diagnosis of clinical problems in infancy requires the exploration of a variety of possible aetiological and perpetuating factors, whose roots may best be conceptualised on a continuum ranging from primarily biological to primarily environmental. Indeed, both organic and environmental deficiencies often coexist and interact to give the final clinical picture of an emotionally troubled infant with parents who are overwhelmed, insensitively responsive, or have other difficulties enjoying their baby.

Psychiatric assessment of infants and their families

The assessment of infants and their families requires particular skills and sensitivity from the clinician. The reasons for this are related, on the one hand, to the very special needs of infants which bind them to their carers and therefore make them understandable only within this interactive system. On the other hand, the behaviour of young children is a reflection of a complex network of biological, cognitive and socio-emotional functions. The clinician must be able to explore the strengths and vulnerabilities of these functions and demonstrate them to the infant's carers. This requires him/her to be an expert on normal child development.

In addition, the clinician must be able to assess comprehensively both positive and negative aspects of the infant's caretaking environment. As the aim of psychiatric intervention is to enhance the caring abilities of those living with the infant patient, this goal must be achieved within a spirit of partnership and co-operation.

Outline of assessment

More details on this assessment are given by Minde & Minde (1986).

Initial interview with parents or other primary carers

An assessment of an infant may begin with an interview of the parents without the baby or young child. This allows the clinician to focus in more detail on background data of both the child and the family. Areas of inquiry are those used in any standard child psychiatric interview. In addition, the clinician should also learn about the understanding the parents have of their infant's condition and assess the contribution they feel they have made to the problem at hand. As there is increasing evidence of an intergenerational transmission of caring practices, it is essential to inquire about the perception parents have of their childhood experiences with their parents.

Developmental testing

Many infants referred to a mental health specialist show signs of an uneven or delayed development. To assess infants and their cognitive, biological and social competency is therefore an important function of the infant psychiatrist.

Available infant tests are either screening instruments (e.g. the Bayley Developmental Scales) or tests which assess the infant's motor, adaptive, language and personal social behaviour (e.g. the Yale Developmental Schedule). While these tests are used to obtain a general idea of the infant's developmental status, they can also be used to assess the quality of the child's relationships and internal structures (e.g. how does John cope when he cannot do something; how does he relate to the examiner or to his parents; has he problems with his attention, etc.?). Finally, such testing allows the clinician to meet the child by 'doing things' together. As experimenting and being active is very natural to a young child, this work together can be an excellent way to get to know a baby and the carers. In cases where developmental delays are identified or suspected, the infant psychiatrist should not hesitate to consult other developmental specialists.

Play interviews

Children aged 18 months and older are ideally seen individually or with their parents for two or three play sessions; younger infants are seen less often. Toys should include dolls, animals (both tame and fierce), a doll's house, cars, dishes and cutlery, and two telephones. With young infants, play sessions consist of observing spontaneous play between the baby and the parents, or engaging the baby in more structured play interactions using games such as 'peek-a-boo' or 'pat-a-cake'.

Evaluation of parenting skills

Caring comprises many facets and skills, varying from instrumental tasks such as feeding and changing to activities which encourage the infant's emotional and social development (Minde, 1990).

We have found it useful to distinguish between parental characteristics which are associated with an infant's general growth and development – parental emotional and physical health, parental self-esteem, general coping and adaptation skills, attitudes towards child-rearing (authoritarian v. democratic), willingness and/or ability to provide developmental encouragement – and those which seem especially important during particular developmental stages of the infant. Among the latter are the following.

(a) The ability to help the infant organise his/her behaviour. This is of special importance during the early months because infants' adaptive self-regulatory capacities provide them with their first experience of tension release and initial form of mastery over the world. Parents can help in making this capacity more adaptive through learning about the individual characteristics of their baby by building on his/her abilities to achieve harmony and regulation.

(b) Sensitivity and availability of the primary carer. Good parenting is characterised by the sensitive appraisal of a child's emotional and physical needs and meeting them in developmentally relevant ways. This involves empathic responsiveness as well as age-appropriate limit setting and disciplining.

(c) Stimulation. The variety, spontaneity and richness of the child-rearing environment have long been known to be vital ingredients of a child's later emotional and cognitive functioning. As recent studies have demonstrated, intellectual stimulation appears to be most effective if it arises out of the joint play with the carer or is pro-actively structured for the child by somebody he/she cares for (Rutter, 1989). This will involve both age-appropriate stimulation and a 'stimulus shelter' where a child can escape for quiet moments alone.

The relevance of infant psychiatry for adult psychiatrists

What does infant psychiatry teach us about adult functioning that can assist us in our clinical work with adult patients?

(a) Development is not just a childhood phenomenon but continues all through life (Erikson, 1963; Minde, 1987). As the rate of developmental change is especially rapid in infancy, the study of babies and young children provides us with a unique insight into the forces shaping development. Nevertheless, the principles which govern development in infancy maintain their relevance all through the lifecycle. Indeed, past experiences are continually reworked by present circumstances (Eisenberg, 1977) and their psychological effects can be modified by critical later experiences (Bowlby, 1988; Rutter, 1989).

(b) Infants show clearly how we actively shape the world we live in. This has important implications for the genesis and treatment of many types of adult maladjustment such as depression and various forms of anxiety disorders.

(c) Infants are biologically primed to interact with other human beings from birth onwards. This is a powerful reminder of the pervasive importance relationships have for any human activity. In fact, there is recent evidence that the quality of attachment in adults as measured by the recently developed Adult Attachment Interview (George *et al*, 1985) reliably reflects particular internal strategies (probably unconscious) which adults use for dealing with thoughts, memories, feelings and behaviour associated with past and present attachment experiences and relationships. Furthermore, adults who are classified as insecure in their attachments are greatly over-represented in parent populations of young children who display maladaptive behaviour (Main *et al*, 1985; Crowell & Feldman, 1988; Benoit *et al*, 1989, 1990). Yet a number of authors have also demonstrated that the expected degree of adult psychopathology following disordered parenting can be significantly altered if a child can establish new relationships with helpful adults later on in life (Main & Goldwyn, 1984). This appears to provide an optimistic assessment of the power of psychotherapy (Bowlby, 1988; Rutter, 1989). Finally, there is increasing evidence that social relationships play an important role in the regulation of internal biological systems throughout life (Hofer, 1984). For instance, grief following the loss of a loved one is often associated with physical manifestations such as anorexia and insomnia, both in children and adults.

(d) The study of infants clearly documents that development has to be understood within the context of the environment, that is, the family and other ecological systems. Much psychiatric illness likewise can be conceptualised within such a framework as recent work on depression (Brown *et al*, 1985), schizophrenia (Leff & Vaughn, 1981) and adult antisocial behaviour (Robins, 1978) has shown.

(e) The study of infants strongly suggests that many psychiatric disorders of children and adults are based on the response to real rather than imagined adverse events. These events may lead to faulty representations or cognitive constructs (Rutter, 1986) or 'working models' (Bretherton, 1985) which then influence our strategies for dealing with specific thoughts, feelings and behaviour later on. The recent interest in cognitive therapy for depression and other emotional disorders which aims at changing the cognitive appraisal a person has of specific situations seems to be in line with this conceptual model.

(f) Finally, infant psychiatry has renewed our interest in parenting and the type of relationships which further coping and health (Minde, 1990). While it was previously thought that maladaptive parenting had to do with the paucity of conversation or play between carer and child or with the wrong type of discipline the child received, we are now aware of a much wider range of personal, social and family variables, which determine parenting competence.

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The Construction and Selection of Predictive Scales, with Special Reference to Parasuicide

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Issues concerning the use of predictive and screening instruments include the difficulties posed by temporal changes in the base rates for the behaviour of interest, the possible advantages of using three rather than the customary two risk categories, and the desirability of specifying in advance the proportional sizes of the risk subgroups. A method is proposed for constructing and assessing tripartite risk scales, and a new scale for predicting the repetition of parasuicide, with the results of a prospective validation study, is reported.

In the course of work on the development of new risk scales for predicting the repetition of parasuicide, a number of general issues arose which may be of interest to others involved in the problems of screening and prediction. This paper first reviews three such questions and describes attempts at their solution. The scales themselves are then described.

The implications of changing rates

Reports from many centres in Continental Europe and in Britain (see Platt *et al*, 1988) indicate that rates of parasuicide have varied markedly over the past 20 years. Such changes must raise the question of whether the *quantitative* variations are accompanied by *qualitative* changes in patient characteristics. It is possible that the clinical features of parasuicide, including those relevant to repetition, have remained constant over this time, much as one might suppose that the clinical features of measles are the same whether or not the infection occurs during an epidemic year. Alternatively, changes in rates could well reflect subtle qualitative differences, of which those features relating to repetition are of particular relevance. There is some evidence that the characteristics of patients with a *prior* history of parasuicide tend to vary from year to year. For example Buglass & Horton (1974*b*), examining the records of three serial cohorts of parasuicide admissions, found that fewer than half the variables associated with past parasuicide in any one cohort attained statistically significant levels of discrimination on all three. Siani *et al* (1979) reported similar findings. Such results might be due to sampling error but could also reflect non-random variation due to secular changes. Most predictive scales (including those presented below) are constructed from items derived from retrospective comparisons of historically defined 'repeaters' and 'non-repeaters', and if the discriminators cease to be valid, predictive instruments derived from them become obsolete. No method of prediction can be expected to succeed consistently if that which is to be predicted changes its characteristics.

An ideal but laborious solution to this problem is for predictive studies to be carried out regularly so that clinicians and research workers may be constantly updated with the information they require. A variation to this approach, which is the strategy we adopted, is to examine data from widely separated periods in order to identify which features consistently proved useful in characterising the 'repeaters'. It is not, of course, possible to infer that characteristics which in the past have proved their discriminatory value will necessarily continue to be helpful, but conversely those which historically have failed to function consistently will inspire limited confidence in their future performance.

A different issue worth mention concerns changes over time in the frequency of the behaviour it is hoped to detect or predict, in this case repetition of parasuicide. The usefulness of a predictive or screening instrument – its positive or negative predictive value – varies if the base rate of the behaviour in question differs from sample to sample. Hence the ability of a predictive scale to identify patients who will repeat their parasuicidal act will vary from group to group according to the true frequency of repetition. Fortunately, the magnitude of such variations between different series of patients seen in similar clinical settings appears to be fairly small.

The clinical usefulness of risk scales

For many purposes a screening instrument with a single cut-off point is adequate, as when used, for example, in a survey as a first step towards determining prevalence. For prediction of likely outcome, however, a risk scale used in this way sacrifices a great deal of information. Something more than a single threshold seems desirable and feasible, even within the constraints of clinical practice, while for research purposes there is clearly scope for a more refined approach.

An allied matter, curiously neglected in the literature, concerns the size of the risk groups defined by a predictive scale. Among other desiderata it is important that the highest-risk subgroup should be reasonably small, since otherwise there would be little possibility of providing the extra resources these patients might require (for case-finding or prevention), and the whole screening exercise becomes pointless.

To meet both these points in the present study it was decided in advance (a) to aim for a scale which in the clinical setting could be used to yield three broad levels of risk – high, intermediate, and low; and (b) that the size of these groups should be respectively 20%, 50%, and 30%. These proportions are, of course, arbitrary but were considered appropriate for present purposes.

Selecting scales

Investigators often have a choice between different instruments ostensibly designed for the same purpose. Similarly, in developing a new predictive instrument it is commonly necessary to choose between several possible alternative versions: in the present context, for example, decisions had to be made whether to use scales specific for males and females or those which could be used for both sexes, and between unweighted or weighted versions using two possible weighting systems. Permutating all these options led to some 12 alternatives, and a procedure was required by which the efficiency of the different versions could be compared.

Existing methods for investigating scale efficiency apply to the situation where a scale contains only a single cut-off point whereas, as previously mentioned, each scale in the present study was envisaged as containing two thresholds. In theory it would be possible to use established methods such as relative operating characteristic analysis (Erdreich & Lee, 1981) to test the efficiency of scales at both their lower threshold (dividing low- from medium-risk ranges) and upper thresholds (between medium- and high-risk ranges) once the cut-off points were defined. This was an unattractive prospect since a scale which performed well at one threshold might well function poorly at the other; what was required was a method of deriving an efficiency index applicable to each scale over its entire range.

The procedure was as follows. As previously intimated, a possible first step in constructing a predictive scale is to identify, if possible, characteristics associated with a behaviour of interest in the past. This was done in the initial stage of the present research, and a series of discriminating variables were identified, as described below, which distinguished between admissions which had or had not been preceded by an earlier parasuicidal episode.

The discriminating variables were then assembled into scales of different kinds. The differences between the scales are not relevant at present; each yielded a score by means of which the population could be ranked. For any given scale, cut-off points were then found which yielded approximately the proportions specified (20%, 50%, and 30%). (In fact we introduced a minor refinement at this point to optimise the exact thresholds, but the details are complex – they are available on request to the authors.)

A useful scale would be one in which the cases identified within the highest-risk group represented as high a proportion as possible of all the cases; this is analogous to the high sensitivity sought in the standard two-class predictive instrument. Similarly, the lowest-risk category should predict only a small proportion of all cases; this property is not directly equivalent to possessing high specificity, although it can be shown to be indirectly linked to it. Thus ch/C should preferably be high, and cl/C should be low (see Table 1).

The size of the three risk subgroups had been specified in advance, but the criteria could not always be met exactly owing, for example, to the absence of a convenient cut-off point. Moreover, other workers may wish to suggest other proportions. The subgroups of different candidate scales may thus be of different sizes. We argue that it is desirable to include consideration of the size of the subgroups in any efficiency index when comparing scales. It has already been proposed that, other things being equal, the highest risk subgroup should be as small as possible. In terms of the notation in Table 1 nh/N

Table 1
Dissimilation of subjects by risk groups in a tripartite screening instrument

Risk group	Non-cases (no previous episode)	Cases (previous episode)	Total
High	$\bar{c}h$	ch	nh
Middle	$\bar{c}m$	cm	nm
Low	$\bar{c}l$	cl	nl
Total	$\bar{C}$	C	N

should be small. Hence combining the two criteria described so far concerning the upper threshold, the value of $ch/C \div nh/N$ should be high. That is to say, the highest-risk subgroup should contain as high a proportion of all cases as possible yet be as small as possible. Conversely, the lowest-risk subgroup – which ideally should contain few cases – should be as large as possible (nl/N should be large). Combining these requirements yields the expression $cl/C \div nl/N$, but this time a low value is preferable.

Finally, a criterion was required that would reflect the properties of the scale with respect to its performance at both the higher and lower cut-off points. The ratio of the upper-level and lower-level indices just specified was used for this purpose. Since a high value for the upper-threshold index and a low value for the lower-threshold index are desirable, it follows that a high value for the ratio of the upper to lower indexes would suggest an efficient scale. This efficiency ratio is thus:

$$\left[\frac{ch}{C} \div \frac{nh}{N}\right] \div \left[\frac{cl}{C} \div \frac{nl}{N}\right] = \left[\frac{ch}{nh} \times \frac{nl}{cl}\right]$$

which is the (true) case rate for the highest-risk group divided by the case rate for the lowest-risk group, or in other words the well known ratio of relative risk.

It may seem counterintuitive to describe the power of a tripartite scale without direct reference to the large middle-risk group. However, a 2×3 table (a dichotomous outcome against three levels of risk) with fixed marginal values has only two degrees of freedom, and is completely specified if the case rates for two of the risk groups is known.

In practice, the method proved reasonably simple to apply. It was useful in enabling various versions of the scales generated during the construction and pilot phases of the study to be eliminated, leaving only a few for further testing, and as a means of specifying the efficiency of the scales in their final forms (see below). The method should be capable of generalisation to other contexts.

Method

In developing the new scales for predicting repetition among patients presenting with parasuicide, the overall strategy was the orthodox one of identifying variables which discriminated between patients with and without a prior history of parasuicide, conducting a pilot study using a combination of these items to determine how well the discriminators acted as prospective predictors, and finally validating the definitive versions of the scales on fresh cohorts.

All parasuicides presenting to any casualty department in the city of Edinburgh are in principle referred to the Accident and Emergency Department of the Royal Infirmary, Edinburgh. A series of spot checks throughout the years under study suggested that in general the policy has been followed; at least it is known that very few parasuicides are actually admitted to other centres. Once received at the Royal Infirmary, all cases, according to policy, are admitted to the Regional Poisoning Treatment Centre (RPTC), the work of which has been fully described elsewhere (Kreitman, 1977). Admission does not always occur, however, and approximately 15% of such cases (events) are not so admitted, of whom about half have suffered some form of self-injury and proceed directly to surgical wards. Compared with the admissions, those not admitted to the RPTC show an excess of men, and of those aged 20–35 years; there is also evidence that patients well known to the hospital by virtue of many prior episodes of parasuicide may not accept or may not be offered admission. A further source of attrition is the self-discharge of patients before psychiatric assessment on the ward. Such cases typically represent about 10% of all admissions to the RPTC, and in comparison with those interviewed by psychiatric staff contain an excess of males and 'repeaters'. Data based on those admissions assessed by psychiatrists therefore underestimate the frequency of repetition, especially among men, and are more accurate for self-poisoning than for self-injuries.

Standardised forms completed under consultant supervision by the medical staff on the ward for each admission provided the base for the present study. It has to be accepted that in any such mass system some inaccuracy in recording is inevitable.

'Construction' cohorts

To meet our concern with consistency over time, as discussed in the introduction, three admission (events) cohorts from 1972, 1977, and 1982 were studied. For men these totalled 476, 532, and 522 respectively, and for women 736, 858, and 730. Each annual cohort of admissions was divided into two sets corresponding to those where the parasuicide represented the patient's first episode, and all other admissions, that is, those which represented second or subsequent episodes of parasuicides, whether treated or not.

A set of 23 descriptive variables judged likely to be useful, and for which data had been collected in a reasonably consistent manner over the years, was selected. Each variable was finally represented in a dichotomous form, using cut-off points based on previous research. Men and women were considered separately.

We noted whether or not an item achieved a statistically significant ($P<0.05$) discrimination in each of the three construction cohorts: if it did not, but reached statistically significant levels of discrimination in two or only one of the cohorts, various subsidiary criteria had to be met for the item to be retained. (Items which achieved significance only when the three cohorts were pooled were eliminated.) This approach to scale construction is highly conservative, and since it is based on univariate analysis does not make allowance at this stage for intercorrelation between the items, which initially were simply summed to form provisional scales.

In addition, two weighing systems were devised, the first reflecting an item's consistency of discrimination across the three cohorts, the second including a measure of the statistical power with which such discrimination was affected.

A considerable number of scales were generated. Consideration of the efficiency ratios, as defined, led to the elimination of most versions at this early stage.

Pilot study

To assess the performance of the scales prospectively, a fresh cohort of admissions, for 1984, was used. To each scale was added a further item concerning a prior history; this item could not be used during the construction phase since a previous history was a criterion for defining the subgroups to be discriminated. A suitable weighting for this important additional item was derived by a subsidiary analysis.

The 1984 cohort again represented admissions (events), and the external or 'gold standard' criterion was whether the admission was followed by another admission within the calendar year, equivalent to an average follow-up of six months. The same patient could be admitted several times, but in view of the possibly anomalous status of the last in a series, for which it could not be specified whether there was or was not a further parasuicidal episode, the final admission in a sequence was dropped from the study. In practice this made little difference to the results. There remained 391 male admissions, of which 20.2% were second or subsequent admissions within the year, while the corresponding values for women were 570 and 20.5%.

The predictive abilities of the scales when used prospectively were tested by calculating their efficiency ratios, as described above. It emerged that: (a) there was no advantage in using sex-specific versions, (b) the simpler unweighted forms were of reasonable power, but (c) the scales with weighted items were more efficient. One of the simpler versions was selected for use in a clinical setting, and the more efficient of the weighted scales for research purposes.

Further tests were then carried out on the predictive power of each individual item. Criteria for retention were: (a) correct prediction of repetition at the 5% level of significance or better, and (b) the generation of item positive and negative subgroups whose repetition rates differed by at least 10%. One item relating to alcohol abuse failed to meet both criteria but was retained (see below). As a final step, for the items remaining within each scale, cross-tabulations were carried out, leading to the elimination of redundancies and the amalgamation of some items of similar character.

The clinical and research scales which remained after the pilot stage were identical, except that the research version used item weightings while the clinical scale required only a simple count of positive scores on a zero/one basis.

The 11 items which make up the scales are shown in Table 2.

Table 2
Scale items

Item	Definition and criteria for positive score	Research scale weight
Previous parasuicide	Any episode, whether treated or not	6
Personality disorder	A clinical diagnosis of personality disorder (prior parasuicide alone is not a sufficient criterion) irrespective of co-existing psychiatric illness	3
Alcohol	Habitual consumption of over 21 units a week for men (14 for women), or physical signs of chronic alcoholism, or has alcohol-dependence syndrome	3
Previous psychiatric treatment	Refers to treatment by psychiatrist (in any setting); excludes brief assessments of earlier parasuicidal episodes	3
Unemployment	'Officially' unemployed and receiving unemployment benefit or social security payment. Excludes permanently sick, retired	3
Social class	Social class V, by Registrar General's criteria	2
Drug abuse	Habitual abuse of drugs, however obtained, including cannabis and solvents	2
Criminal record	Found guilty by a court of a criminal offence at any time, including traffic offences but excluding children's panel appearances	2
Violence	Either patient involved in physical violence to any other adults, or has been subject to violence by spouse or other relatives. Refers to past 5 years only	2
Age	25–54 years	2
Civil status	Legal status single, divorced, or married but separated	1

Clinical use

For clinical purposes each positive item in the scale is scored as 1. Where data are missing the item is scored 0. Totals may thus range from 0–11. Men and women are scored similarly but the recommended thresholds for defining levels of risk differ between the sexes.

The scales were validated prospectively on two fresh cohorts, those for 1985 and 1986 (Tables 3, 4). Table 3 shows that the obtained distributions are unimodal, and approximately normal although positively skewed to a minor degree in all samples. The 'case rate', i.e. the proportion of episodes followed by a further admission, increases reasonably uniformly with increasing scores. Table 4 summarises these findings, and indicates the recommended thresholds of the three risk categories. It can be seen that the efficiency ratios of the scales in the four data sets are always greater than 5.

Research use

In contexts where greater accuracy of prediction is required, investigators may prefer the weightings for the items

Table 3
Predictive scales applied to 1985 and 1986 validation cohorts: clinical and research scoring

Score	1985			1986		
	no.	no. with subsequent admission	case rate	no.	no. with subsequent admission	case rate
Clinical scoring						
Men						
0	9	0		5	0	
1	23	1	0.01	25	2	0.06
2	50	0		33	2	
3	56	1	0.02	40	4	0.10
4	57	5	0.09	51	5	0.10
5	47	9	0.19	61	13	0.21
6	46	13	0.28	62	18	0.29
7	51	22	0.43	55	13	0.24
8	45	23	0.51	25	9	0.36
9	20	7	0.35	13	6	0.46
10	6	5	0.75	8	4	0.56
11	2	1		1	1	
	412	87	0.21	379	77	0.20
Women						
0	14	1		15	0	
1	65	0	0.05	74	0	0.05
2	83	7		116	11	
3	103	10	0.10	92	6	0.07
4	84	15	0.18	67	17	0.25
5	69	24	0.35	66	15	0.23
6	46	15	0.33	47	13	0.28
7	35	14	0.40	31	8	0.26
8	23	13	0.57	12	6	0.50
9	8	3		8	5	
10	1	1	0.44	2	1	0.60
11	–	–		–	–	
	531	103	0.19	530	82	0.15
Research scoring						
Men						
0–1	21	0		12	1	
2–3	31	1	0.03	27	1	0.04
4–5	26	1		23	0	
6–7	32	0		32	2	
8–9	45	2	0.02	30	3	0.10
10–11	37	1		31	3	
12–13	36	7	0.19	39	8	0.21
14–15	27	8	0.30	38	8	0.21
16–17	29	9	0.31	34	12	0.35
18–19	32	8	0.25	49	12	0.24
20–21	33	17	0.52	25	8	0.32
22–23	28	17	0.61	14	7	0.50
24–25	24	10	0.42	13	4	0.31
+	8	6	0.75	12	8	0.67
	412	87	0.21	379	77	0.20
Women						
0–1	37	1	0.03	43	0	0.02
2–3	65	2		92	3	
4–5	38	2	0.05	58	6	0.10
6–7	56	3	0.05	53	1	0.05
8–9	64	8	0.13	41	4	

(continued)

Table 3 (*continued*)

Score	1985 no.	1985 no. with subsequent admission	1985 case rate	1986 no.	1986 no. with subsequent admission	1986 case rate
10–11	43	7	0.16	48	7	0.16
12–13	47	7	0.15	39	12	0.31
14–15	68	25	0.37	49	13	0.27
16–17	37	12	0.32	35	10	0.29
18–19	20	9	0.45	30	8	0.27
20–21	27	12	0.26	23	6	0.26
22–23	19	10	0.53	9	6	0.67
24–25	9	4	0.50	8	5	0.60
+	1	1		2	1	
	531	77	0.20	530	82	0.15

shown in Table 2. Total scores may range from 0 to 29. As with the clinical application, men and women are scored similarly but different risk thresholds are employed. Tables 3 and 4 also give the results obtained in the validation cohorts using the research scoring. Since in comparison with the clinical scoring system the research scale has more points, each based on a smaller number of cases, the overall distributions are less smooth, as is the progression of correct predictions over the range from low to high scores. The distributions also tend to be more rectilinear. At the extremes the differentiation between the low- and high-risk categories is more marked than is found with the clinical version; thus with one exception the efficiency ratios using research scoring are higher than those using clinical scoring (Table 4). (Researchers may of course wish to use more than three categories of risk.)

Table 4
Clinical and research scales: recommended risk categories, and efficiency ratios for 1985 and 1986 cohorts

Risk category and thresholds	1985 no. (%)	1985 no. with further episode (%)	1985 case rate (%)	1986 no. (%)	1986 no. with further episode (%)	1986 case rate (%)
Clinical scoring						
Men						
low 0–3	138 (33.5)	2 (2.3)	1.4	103 (27.2)	8 (10.4)	7.8
middle 4–7	201 (48.8)	49 (56.3)	24.4	239 (60.4)	49 (63.6)	21.4
high 8+	73 (17.7)	36 (41.4)	49.3	47 (12.4)	20 (26.0)	42.6
	412 (100)	87 (100)	21.1	379 (100)	77 (100)	20.3
efficiency ratio		35.2[1]			5.5	
Women						
low 0–2	162 (30.5)	8 (7.8)	4.9	205 (38.7)	11 (13.4)	5.4
middle 3–5	256 (49.2)	49 (47.5)	19.1	225 (42.5)	38 (46.3)	16.9
high 6+	113 (21.3)	46 (44.7)	40.7	100 (18.9)	33 (40.2)	33.0
	531 (100)	103 (100)	19.4	530	82 (100)	15.5
efficiency ratio		8.3			6.1	
Research scoring						
low 0–7	113 (27.4)	2 (2.3)	1 8	94 (24.8)	4 (5.2)	4.3
middle 8–20	227 (55.1)	46 (52.9)	20.3	235 (62.0)	51 (66.2)	21.7
high 21+	72 (17.5)	39 (44.8)	54.2	50 (13.2)	22 (28.6)	44.0
	412 (100)	87 (100)	21.1	379 (100)	77 (100)	20.3
efficiency ratio		30.1			10.2	
Women						
low 0–5	140 (26.4)	5 (4.9)	3.6	193 (36.4)	9 (11.0)	4.7
middle 6–16	288 (54.2)	53 (51.5)	18.4	243 (45.8)	40 (48.8)	16.5
high 17+	103 (19.4)	45 (43.7)	43.7	94 (17.7)	33 (40.2)	35.1
	531 (100)	103 (100)	19.4	530 (100)	82 (100)	16.1
efficiency ratio		12.1			7.5	

[1] This very high efficiency ratio is partly an artefact consequential on the atypically small number of repetitions in the low-risk category.

The thresholds set during the pilot phase to generate the 20%, 50%, and 30% proportions for the three risk categories are validated by the 1985 and 1986 cohorts; these fractions are obtained in all the clinical applications and three out of four of the research applications of the scales to within ±5%.

Discussion

Two methodological issues merit further comment. The first concerns the use of relative risk as a means of assessing the efficiency of a three-level risk scale. However strong the rationale for this procedure, it should be borne in mind that relative risk is a ratio and hence tends in practice to be somewhat unstable. This is because in determining the ratio the lower rate (i.e. that for the low-risk group) is taken as unity but may be based on comparatively few cases and hence be particularly susceptible to random error. There may be some advantage in using the square roots or logarithms of the rates.

Secondly, the practical utility of a test – its predictive value – in a given population depends upon the prevalence of the condition it is hoped to detect or predict. The same situation pertains a three-level test, but it has yet to be determined whether the ratio of relative risk varies with prevalence in precisely the same way as the index of positive (or negative) predictive value for a two-level test.

An interesting, and very different, problem arises concerning prediction where the outcome behaviour, in this instance a further parasuicidal episode, is one of a series and not necessarily the last in the patient's lifetime. The unit of study is an event, with the hope of predicting from one event to its recurrence, if any. That implies that the scale should operate with equal efficiency in predicting from, say, the second to the third episode in a patient's career as from his 30th to his 31st. Such is unlikely to be the case, and it is relevant here to recall the curious anomaly noted with respect to the item concerning chronic alcohol abuse. Numerous authors have found an association between alcohol abuse, especially when chronic, and a history of earlier parasuicidal episodes (Buglass & Horton, 1974*a*: Barnes, 1979; Reynolds & Eaton, 1986; Kreitman & Casey, 1988). Similarly, in the present study, in all three construction cohorts items concerning alcohol were highly efficient discriminators in both sexes between those with a history of prior parasuicide and those with none. Yet they failed to achieve impressive levels of prediction when tested prospectively on the 1984 cohort (in which respect the results differ from those of Buglass & Horton (1974*b*) and Garzotto *et al* (1986)). The discrepancy between the retrospective and prospective performance of this item was not due to any substantial difference in the frequency of alcohol abuse between the construction and prediction cohorts. Further analysis showed that the alcohol-related items were particularly effective in discriminating historically between those repeaters with a comparatively small number of episodes and those with very many, rather than between first-ever admissions and all repetitions. In other words, this item appears to vary in its efficiency according to the stage of the patient's history. It was retained in the scales since for some patients prediction even after a large number of prior episodes may still be required. There is also the possibility that failure to act efficiently when applied prospectively to the 1984 cohort as a whole might well point to a different 'mix' with respect to the categories of repetition in different study populations. Relevant here is the study by Kreitman & Casey (1988), who showed that the characteristics which distinguish a 'first-ever' patient from a 'minor repeater' are different from those identifying the 'minor' from the 'major' repeater category.

A major aim of the present study was to obtain predictive scales likely to be stable over time. Table 4, however, suggests that in general the efficiency of the scales was somewhat less for 1986 than for 1985. This is disturbing, but clearly further replication is required to determine if the apparent fall in efficiency is a chance finding or represents the beginning of a temporal drift.

Table 4 illustrates another point which applies to the majority of predictive instruments. For men in 1986 the high-risk subgroup produced a case rate of 42.6%, which is over five times the rate for the low-risk group and over twice that for the series as a whole. However, the high-risk group only accounted for 26% of the cases; the majority were generated by the much larger middle-risk group. (It was in anticipation of such a result that a comparatively large middle-risk group was pre-specified.) Thus even if preventive efforts with the high-risk group were totally successful and no patient repeated, the overall repetition rate would be reduced by only a quarter. Nor can it be assumed that therapeutic effort invested in this group is necessarily the most cost effective. Only an appropriately stratified clinical trial could provide the data required for the rational design, including costing, of an aftercare service.

Finally, the question remains of how the present scales compare with the earlier predictive instrument developed by Buglass & Horton (1974*a*). That scale comprised in its final form six items, of which five also appear in the current scale; the sixth item, sociopathy, was missing from the more recent data set, and various alternative approximations were devised to represent this variable. A series of

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comparisons were then carried out using both the pilot and the 1985 and 1986 validation cohort. In the majority of these the clinical version of the new scale proved to be more efficient. Overall it does appear that some progress has been made. Comparisons with other prospectively validated scales (see Burk *et al*, 1985) cannot be made since they all concern completed suicide following parasuicide and the predictors for the two types of outcome are largely distinct (Galzotto *et al*, 1977; Wang *et al*, 1985).

The items which make up the scales are likely to be covered during routine clinical assessment. Further work may, however, be required testing tighter definitions for some of the items, especially for personality disorder and civil state. The scales also should be tested on other groups of parasuicides such as those selectively referred for psychiatric assessment.

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The Diagnosis of Dementia in the Elderly

A Comparison of CAMCOG (the Cognitive Section of CAMDEX), the AGECAT Program, DSM–III, the Mini-Mental State Examination and Some Short Rating Scales

G. BLESSED, S. E. BLACK, T. BUTLER and D. W. K. KAY

The performance of CAMCOG, the cognitive section of the CAMDEX, is compared in a non-random sample of 222 elderly people with diagnoses based on AGECAT and on DSM–III criteria, and with the MMSE and some short rating scales. With a cut-off point of 69/70 and AGECAT organic syndrome as the criterion, the sensitivity of CAMCOG was 97% and the specificity 91%. However, 21% of DSM–III diagnoses of dementia scored above this cut-off; these were mostly mild cases. The correlation between CAMCOG and MMSE scores was 0.87, and the advantage of CAMCOG may be more apparent in longitudinal studies. Multivariate analyses showed that CAMCOG scores are affected by age, sociocultural factors and hearing and visual deficits in addition to dementia, but not by depression. There was a suggestion that individual subsections are differentially affected.

Two standardised psychiatric interviews for the diagnosis of dementia and other mental disorders in the elderly, the CAMDEX (Roth *et al*, 1986, 1988) and the GMS/AGECAT system (Copeland *et al*, 1986), are difficult to compare directly because it is impracticable to administer both to the same patient concurrently or within a short time of each other. However, the cognitive examination, CAMCOG, forms a self-contained part of CAMDEX and overlaps little in content with the Geriatric Mental State (GMS). In this study, GMS and CAMCOG were administered at the same interview, which also included items to permit scores on other brief scales in common use to be calculated. In addition, the effects of age, sex, education, social class, physical illness, sensory deficits and depression on CAMCOG scores are examined.

Method

Two non-random populations of elderly community residents were chosen, each expected to contain a high proportion of persons at risk of dementia. The first group comprised 97 patients registered with a single general practice and were selected for interview because they had previously made two or more errors on a 13-item test of mental function (Jachuck *et al*, 1984; Kay *et al*, 1990); a small control group of 15 patients with full scores was included. The mean age of all 112 patients was 82.2 years (s.e.m. 0.51). The second group comprised 113, predominately younger elderly volunteers (mean age 66.4 years, s.e.m. 0.64) participating in the North-East Age Research (NEAR) project (Rabbitt, 1986). On a cognitive test battery used by NEAR, 93 had shown deficits and 20 had shown none.

The general practice patients and 13 of the NEAR subjects who had withdrawn from the project were interviewed at home and the rest were seen in an office used for reviews by the NEAR team which was familiar to the volunteers. The mean age of the whole sample was 74.3 years (s.e.m. 0.67, range 54–98). Eight subjects were in long-term hospital care or part–III (local-authority) accommodation and the remainder were living at home, 18 in sheltered housing. There were 52 men and 173 women.

The following instruments were used:

(a) the community version of the GMS/AGECAT package, including the History and Aetiology Schedule (HAS) and Social Status Schedule (SSS) (Copeland *et al*, 1986); the HAS and SSS with the subject's consent were completed with an informant whenever one was available, and with the subject when there was no informant
(b) CAMCOG (Roth *et al*, 1988)
(c) the cognitive items of the Clifton Assessment Procedure for the Elderly (CAPE; Pattie & Gilleard, 1976)
(d) the 10-item Abbreviated Mental Test (AMT; Hodkinson, 1972)
(e) the Mini-Mental State Examination (MMSE; Folstein *et al*, 1975), with the 'serial sevens' item and not the 'world backwards' item used in calculation of the total score
(f) the Blessed Dementia Scale (BDS; Blessed *et al*, 1968) obtained from an informant, which provided information about activities of daily living.

The computer program AGECAT identifies syndrome cases or subcases of 'organicity' and depression at six levels of confidence: level 0 represents no syndrome, levels 1 and 2 are regarded as subclinical syndromes or subcases, and levels 3 and above correspond to clinical cases (Copeland *et al*, 1986, 1988). A person may be a case or subcase on both an organic and a depressive syndrome. A syndrome case would be designated a diagnostic case when it was the only or the primary syndrome present. However, it seemed appropriate in this study to relate the CAMCOG score to the AGECAT organic syndrome level rather than to the diagnostic case (or subcase) level since a diagnosis of depression could have hidden any coexisting organic syndrome.

Organicity levels of 3 or over (o3) may be due to dementia, acute confusion, or other organic causes. In fact, one man with level o4 (CAMCOG score 13) was diagnosed as mentally handicapped, but the remaining organic syndrome cases were diagnosed as dementia. There were two cases which AGECAT had not diagnosed as organic owing to lack of data (both were inaccessible) who were classified as o4 (demented) as a result of information obtained from hospital records and the HAS. The CAMCOG scores in both cases were zero. This modified AGECAT diagnosis was the criterion against which the performance of the rating scales was usually measured. In the rest of this paper it is referred to as the AGECAT diagnosis or AGECAT organic level.

At the end of the interview but before the data were analysed or scale scores computed, a DSM-III diagnosis (American Psychiatric Association, 1980) (DSM-III-R was not then available) was made, drawing on all the available information. The presence of physical illness and sensory deficits was assessed from the HAS and from observation. Education and social class were assessed from the SSS. Social class was graded 1–5 according to the *Classification of Occupations* (Office of Population Censuses and Surveys, 1980), married women and widows being allocated to the class appropriate for their husband's occupation; and on the 13 occasions where this was not known, these women were allocated to social class III (manual), along with never-married women who had spent their lives as homemakers. Education was graded as special or little formal education (1), elementary education only (2), apprenticeship or school-leaving certificate (3) and university or equivalent (4).

When a full interview was not obtained the incomplete or zero score was recorded. Also, when an individual item was not attempted a zero score was given for that item. In other words, following the guidelines, failure for any reason was equivalent to inability to do the item. In most cases this appeared to be a reasonable conclusion. (The problem of visual impairment is discussed below.) However, three subjects refused to continue the CAMCOG for reasons unconnected with ability to do the test and have been omitted.

The data were analysed on the Newcastle University mainframe computer using the Statistical Package for the Social Sciences (1986). Spearman rank-order correlations were calculated to measure the association between variables.

Results

Table 1 shows the distributions and medians of CAMCOG scores according to the AGECAT diagnosis. The distributions on levels 1 and 2 did not differ significantly and are combined. The medians decrease (lower scores reflecting poorer functioning) in a regular manner from 93 at AGECAT level 0 to 35 at AGECAT level 4+. (The discrepant cases mentioned above were allocated to level o4.) The differences in distributions between AGECAT levels 0 and 1+2, and between levels 1+2 and 3+ are highly significant (Mann–Whitney *U* test, two-tailed, $P=0.0002$ and $P<0.0001$ respectively).

The Spearman correlation between the CAMCOG score and the AGECAT organic level was −0.58. Of the subsections, 'orientation' had the highest correlation (−0.57) with the AGECAT organic level, 'memory and language' the next highest and 'calculation' the lowest (−0.36). All these correlations are highly significant ($P<0.001$).

With a cut-off point of 69/70, CAMCOG classified 47 patients as cases of dementia, AGECAT 31. Thus CAMCOG misclassified 18 cases according to the AGECAT diagnosis. The overall misclassification rate was 8.1% (1 false negative, 17 false positives). Sensitivity was 97% and specificity 91%. AGECAT was significantly more conservative than CAMCOG in its diagnosis of dementia (McNemar's test, $P<0.001$).

There were 18 misclassified cases. The one false negative, whose CAMCOG score was 76 and MMSE score 21, had an AGECAT clinical level depression syndrome in addition to an organic diagnosis. Of the 17 false positives, five were subclinical organic cases at levels 1 or 2. Eight subjects had non-organic AGECAT diagnoses, mostly depression, but three of these also had subclinical organic syndromes. Two others had a DSM-III diagnosis of dysthymia. Two subjects had no diagnosis of any kind.

Seven subjects scored zero for the CAMCOG total scores apparently being unable to answer any of the questions,

Table 1
AGECAT organic levels and CAMCOG scores

AGECAT level	CAMCOG scores							
	<50	50–59	60–69	70–79	80–89	90+	total	median (range)
0	0	3[1]	7[1]	12	37	100	159	93 (50–105)
1+2	4[1]	1[1]	2[1]	7	8	10	32	84 (32–103)
3	5	7	3	1[1]	0	0	16	56 (25–76)
4+	10	5	0	0	0	0	15	35 (0–56)
Total	19	16	12	20	45	110	222[2]	89 (0–105)

1. Discrepant cases
2. Three scores missing due to active refusal (one level 4, two level 0).

and a further 25 failed to complete all the items. Fifteen of these subjects were diagnosed as demented by AGECAT and eight as depressed. The commonest explanation for failure to attempt an item was that the test material could not be seen clearly. When the scores of the subjects with visual complaints were recalculated on the basis of their scores on non-visual items, two increased their scores to above the cut-off point; neither were demented according to any other criterion and use of revised scores would have decreased the number of false positives to 15.

According to DSM-III criteria there were 42 cases of dementia – 11 more cases than diagnosed by AGECAT, but five fewer than scored below the cut-off point 69/70 on CAMCOG. There were nine CAMCOG false negatives using DSM-III as the criterion (considered to be DSM-III cases of dementia who scored above the CAMCOG cut-off point), mostly mild cases of senile dementia; only three of them had even a subclinical organic level on AGECAT. Four obtained a CAMCOG score of 70–79, four of 80–89 and one scored over 90.

Of the false positives (without a DSM-III diagnosis of dementia), one was the man with lifelong mental handicap, seven had a functional disorder and six had no DSM-III diagnosis. However, three of the false positives obtained a clinical organic level on AGECAT, that is, there was concordance between CAMCOG and AGECAT but not between CAMCOG and DSM-III. Six false positives obtained an AGECAT subclinical organic level. Using the same CAMCOG cut-off point as before, the misclassification rate was 10.4%, sensitivity was 79% and specificity was 92%. However, DSM-III was not significantly more conservative in diagnosing dementia than CAMCOG (McNemar's test, $P=0.82$).

Subjects who were not diagnosed as demented by AGECAT but were possibly demented by other criteria included 32 patients with AGECAT organic levels of 1 or 2 (Table 1) and 10 additional subjects with DSM-III diagnoses of dementia. Of these 42 subjects 26% had CAMCOG scores below 70, 21% scored 70–79, 26% scored 80–89 and 26% over 90. This may be compared with percentages of 4.6%, 7.3%, 22.5% and 65.6% in the CAMCOG categories among the 149 subjects in whom there was no organic diagnosis on any of the measures. This difference in distribution is highly significant (Mann-Whitney *U*-test, two-tailed).

Table 2
Percentile scores obtained on various scales

Percentile	CAMCOG	MMSE	AMT	CAPE	BDS
5th	32.5	12.0	4.5	5.7	14.8
10th	50.0	15.1	6.2	8.0	11.0
15th	59.0	18.0	7.0	9.5	7.0
20th	68.6	20.0	7.9	10.5	5.5
25th	74.0	21.0	8.5	11.0	4.9
30th	78.9	23.0	8.5	11.0	4.2
40th	87.0	25.0	9.0	11.5	2.0
50th	89.5	26.0	9.0	12.0[1]	1.7
60th	92.0	27.0	9.5	12.0	0.5
70th	95.0	27.7	10.0[1]	12.0	0[1]
80th	97.4	28.0	10.0	12.0	0
90th	100.0[2]	29.0[3]	10.0	12.0	0

1. Best possible score.
2 Best possible score = 107.
3 Best possible score = 30

Spearman correlations between the CAMCOG score and other scale scores ranged from 0.63 to 0.87 (all highly significant, $P<0.001$); the highest correlation was with the MMSE. Since there are many shared items between CAMCOG and the MMSE, all MMSE items included in CAMCOG were removed: the correlation was then found to be 0.81, still higher than for any other test. The correlation with the BDS, a measure of everyday activities, was 0.75.

Percentiles were calculated to show approximately equivalent scores and percentages according to cut-off points on the various scales (Table 2). There was a strong 'ceiling' effect with the shorter scales, especially the CAPE. This suggests that the BDS, AMT and CAPE are suitable scales for identifying more severely demented patients because most of the scores fall into the upper end of the distribution.

The sensitivity and specificity of the CAMCOG may be compared with those of other scales, taking the AGECAT diagnosis as criterion and with the usual cut-off points (Table 3). The difference between the MMSE and AGECAT was not significant with a cut-off at 17/18, but was highly significant with cut-off point of 23/24 (McNemar's test, $P<0.001$), AGECAT being the more conservative. The difference between AMT and AGECAT was not significant, while that between CAPE and AGECAT was highly significant, CAPE being the more conservative.

The Spearman correlation coefficients of CAMCOG scores with the other variables are shown in Table 4. Physical illness means active illness and does not include stroke; no case was in active stroke. The depression variable in Table 4 is the AGECAT syndrome level (0–4) of either neurotic or psychotic depression. For comparison, the correlations of the same variables with AGECAT organic level and DSM-III diagnosis of dementia are also shown.

Table 3
Sensitivity and specificity of CAMCOG and other scales, with AGECAT diagnosis as criterion

	AGECAT organic level 3+		Total	Sensitivity	Specificity
	dementia	no dementia			
CAMCOG					
⩽69	30	17	47	97%	91%
⩾70	1	174	175		
CAPE					
⩽7	17	0	17	55%	100%
⩾8	14	191	205		
AMT					
⩽7.5	26	8	34	84%	96%
⩾8	5	183	188		
MMSE					
⩽17	24	8	32	77%	96%
⩾18	7	183	190		
MMSE					
⩽23	31	43	74	100%	77%
⩾24	0	148	148		
Total	31	191	222		

Table 4
Spearman correlation coefficients of selected variables with CAMCOG score, AGECAT organic level and DSM–III diagnosis of dementia

	All cases ($n=222$): CAMCOG	Non-dements[1] ($n=177$): CAMCOG	All cases ($n=222$): AGECAT (0–5	All cases ($n=222$): DSM–III
Age	−0.66**	−0.56**	0.43**	0.41**
Sex	0.13	0.25*	−0.02	0.06
Education	0.37**	0.34**	−0.16*	−0.16*
Social class	−0.37**	−0.44**	0.08	0.03
Physical illness	−0.34**	−0.18*	0.30**	0.29**
Visual defect	−0.31**	−0.21*	0.22**	0.25**
Hearing loss	−0.34**	−0.24*	0.24**	0.28**
Stroke	−0.26**	−0.05	0.27**	0.35**
Depression	0.03	−0.07	−0.03	−0.12

1 AGECAT level <3 and no DSM–III organic diagnosis.
*$P<0.01$, **$P<0.001$.

Correlations were calculated both with and without demented subjects. The largest correlations were with age: −0.66 when demented persons were included and −0.56 when demented persons were omitted; both are highly significant ($P<0.001$). In both groups social class was correlated with CAMCOG scores but not with AGECAT organic level or DSM–III dementia. The correlations of −0.16 of educational level with AGECAT and DSM–III dementia, though significant ($P<0.01$), were less than half those with CAMCOG (Table 4). Physical illness, sensory deficits and stroke were also correlated with CAMCOG scores, but stroke was not associated with the CAMCOG score in non-demented persons. Men tended to score slightly better than women. Depression did not correlate either with CAMCOG score or with the diagnostic variables, and this was true when the analysis was restricted to normal and depressed subjects, and when neurotic and psychotic depression were entered separately.

Because of dependency between variables, stepwise regression analyses were carried out to determine the predictive power of each variable in the presence of the other variables. The stepwise procedure considered AGECAT level, age, sex, social class, education, illness, hearing, vision and stroke as possible predictor variables. Depression was omitted from the final list. The procedure was repeated with orientation, memory, language, praxis, perception and abstraction subsection scores on the CAMCOG. The suitability of the regression models was monitored by analysis of residuals.

With the full CAMCOG score as the dependent variable, eight variables accounted for 71% of the variance. The order of importance was: AGECAT organic level and age ($P<0.0001$), vision and social class ($P<0.001$), and hearing ($P<0.01$); education, stroke and sex were not predictive. The organic level, age, vision and either social class or education were also the main predictors for each of the subsection scores but age did not predict orientation and vision did not predict abstraction. Physical illness and stroke predicted perception and abstraction respectively.

Omitting AGECAT, as if only CAMCOG had been administered, the variance accounted for was reduced to 50% (Table 5). The predictive variables in order of importance were age, vision, education, hearing, physical illness and stroke. Social class was significant when education was omitted. Age, vision, hearing and either social class or education also predicted most of the subsection scores. With the organic level absent, physical illness and stroke became more important. Only age predicted calculation.

When demented persons (AGECAT level ≥3 and DSM–III cases) were excluded from the analysis, 52% of the variance was accounted for by age and social class ($P<0.0001$), vision and hearing ($P<0.001$), sex ($P<0.01$) and physical illness ($P<0.05$). Male sex predicted a higher score than female sex.

Discussion

Although the sample was not random, and dementia was more prevalent in the sample than in the general elderly population, it was possible to study the relationship between the various instruments. The AGECAT diagnosis of organicity after modification by the HAS in two cases was chosen as the criterion

Table 5
Stepwise regression analyses with CAMCOG and CAMCOG subsections as dependent variables showing P values of independent variables

Independent variables	CAMCOG	Orientation	Memory	Language	Praxis	Perception	Abstraction
Age	<0.000	<0.000	<0.000	<0.000	<0.000	<0.000	<0.000
Visual defect	<0.001	0.042	0.017	<0.000	0.004	<0.000	–
Education	<0.001	–	0.049	–	0.002	0.045	0.018
Hearing defect	0.012	0.033	0.033	0.008	–	0.033	0.039
Physical illness	0.013	0.003	0.019	0.033	0.013	0.027	0.014
Stroke	0.031	–	–	0.034	–	–	0.020
Social class	–	–	–	<0.001	–	–	0.012
R^2	0.50	0.27	0.38	0.46	0.29	0.51	0.42
R^{*2}	0.71	0.61	0.65	0.60	0.41	0.59	0.49

Sex only became significant when demented subjects were excluded.
Dependent variable: total CAMCOG or individual subsection scores. R^2, variance accounted for. R^{*2}, variance accounted for when AGECAT organic level was included in the regression.

gainst which to measure the CAMCOG scores ecause it was independent of the interviewer and beause only a few orientation items are common to oth measures. Moreover, AGECAT has been shown o agree well with clinical diagnosis by psychiatrists Copeland *et al*, 1988).

With a cut-off point of 69/70 the sensitivity and pecificity of CAMCOG were both shown to be high, s previously found by Brayne & Calloway (1989); owever, these authors used the CAMDEX clinical iagnosis as criterion, which may have involved some ircularity. Roth *et al* (1986) had earlier suggested cut-off of 79/80 but pointed out that this might not pply to all samples. A cut-off score of 69/70 was ound to be equivalent to a MMSE score of 20/21, n AMT score of 8/8.5 and a CAPE score of 10.5/11. With these equivalent cut-off points, sensitivities and pecificities are: CAPE 93.5% and 91.4%; AMT 3.5% and 87.4%, and MMSE 90.3% and 88.0%. n the BDS the equivalent score was 5/5.5.

In making a DSM–III diagnosis the interviewer would have been aware of the subjects' performance n CAMCOG and may have used some of the items to fulfil the DSM–III criteria for dementia (e.g. igher cortical function). However, the total score was calculated later. In fact, using DSM–III criteria, ementia was diagnosed in several subjects whose CAMCOG scores fell above the cut-off point. DSM–III proved less stringent than AGECAT and more ases of dementia were diagnosed. With DSM–III iagnosis of dementia as criterion the sensitivity and specificity of CAMCOG (with a cut-off of 69/70) were 79% and 92% respectively. Most of the false negatives were mild cases of senile dementia; AGECAT either did not diagnose them or diagnosed them as subclinical cases only. Only long-term follow-up would indicate which diagnosis was more correct.

The large and highly significant correlations of CAMCOG score with other scale scores were expected in view of their shared items. However, the CAMCOG score also correlated highly with the informant-derived BDS, which is based on activities of daily living. CAMCOG correlated most highly with the MMSE, which includes ten identical orientation items and a few other identical items. However, when the shared items were removed from CAMCOG the correlation between the two scales was only slightly reduced, suggesting that the two scales are measuring similar functions.

Comparison with other scales showed that CAMCOG had the highest sensitivity except for the MMSE with a cut-off of 23/24, but that its specificity was higher than the MMSE's and only slightly lower than that of the other scales.

Multivariate analyses showed that the presence of an organic syndrome as defined by AGECAT was the most important predictor of the CAMCOG score and accounted for the greater part of the variance. However, age, vision, hearing and social class also affected CAMCOG significantly. Impaired hearing may not necessarily be an artefact of testing (Uhlmann *et al*, 1989): it has been found to be associated with dementia (Herbst & Humphrey, 1980) and may be related to temporal lobe pathology in Alzheimer's disease (Grimes *et al*, 1985), presumably as a type of aphasia. Poor vision would affect performance, especially on the CAMCOG visual items.

Rating scale scores are affected by sociocultural factors. In the present study either social class or education were shown to affect CAMCOG scores in different analyses; that they seldom appeared together may be due to the high correlation between them and the small sample size. However, social class did not affect the AGECAT level or DSM–III diagnosis of dementia.

The apparent lack of a relationship between the presence of a depressive syndrome and detectable cognitive impairment (including depressive pseudodementia) could be due to the rarity of severe depression in the community compared with patient populations. Henderson (1990) noted that in population-based surveys, unlike clinical samples, syndromes of depression and dementia did not coexist more often than by chance.

To study which variables would be predictive if only CAMCOG were administered, the AGECAT level was omitted; age then accounted for most of the variance, but education, vision, hearing, physical illness and stroke made significant contributions.

There was some evidence of a differential effect of predictor variables on the cognitive abilities represented by each subsection. For instance, abstraction was not affected by vision or orientation by social class or education, and only language was strongly affected by hearing. In the absence of the AGECAT variable, perception, language and abstraction were relatively well predicted and orientation and praxis poorly predicted, by non-cognitive characteristics. This may be because the organicity items of the criterion, AGECAT, are chiefly orientation and memory items.

In view of the high proportion of demented persons in the sample the analyses were repeated with demented persons and the AGECAT level removed. Age and social class were highly significantly correlated with and predictive of CAMCOG score. When studying the MMSE, O'Connor *et al* (1989) found that when demented persons were removed age, social class and education, acting separately, best explained the variation in scores. O'Connor *et al* (1990) have also shown that neither social class nor educational levels affects the chances of being clinically diagnosed as demented, which is in general agreement with the difference in susceptibility of the CAMCOG score and diagnosis to sociocultural influences reported here.

In conclusion, CAMCOG with cut-off score of 69/70 is shown to be highly sensitive to moderate/severe dementia in the elderly (i.e. as defined by an AGECAT syndrome at level o3+), and over 90% specific. This cut-off is approximately equivalent to a MMSE score of 20/21. The appropriate cut-off point for mild dementias is unclear because of uncertainty about the criterion. Longitudinal studies are required, and may also show whether CAMCOG's high ceiling will make it possible to detect changes over time at higher levels of performance. The influence of non-cognitive factors, particularly age, sensory deficits and sociocultural background, implies that CAMCOG should be interpreted in the light of all the evidence.

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Psychological Symptoms and their Course in First-Year Medical Students as Assessed by the Interval General Health Questionnaire (I-GHQ)

P. McC. MILLER and P. G. SURTEES

Evidence is presented concerning the concurrent validity of the Interval General Health Questionnaire. This was used to describe the timing and course of spells of depression and anxiety symptoms in first-year medical students over their initial six months at university. A small subgroup of students who were continuously symptomatic were distinguished from other groups by the presence of a number of factors: they were slow to make friends, had inappropriate support from relatives, had a tendency to have rows, had steady girl/boyfriends and had 'vulnerable' personalities. By contrast, a large subgroup who were well throughout had experienced caring childhood backgrounds, seldom had girl/boyfriends, showed little tendency to have rows and had 'resilient' personalities. Other subgroups are also described. It is suggested that students who suffer from chronic minor symptomatic distress could be recognised early on and offered appropriate support from counselling services.

Full details of the Interval General Health Questionnaire (I-GHQ) have been provided by Surtees & Miller (1990). Briefly, it is a flexible technique based on 12 selected items from the 30-item General Health Questionnaire (Goldberg, 1978) combined with an adaptation of the Longitudinal Interval Follow-up Evaluation (LIFE) procedure (Keller *et al*, 1987), but intended to assess more minor psychological conditions over a period of time. Each GHQ item is assessed and scored in the usual way at intervals which may be several months apart. At the later times of testing, changes in the item scores during the preceding period are inquired about, allowing subjects to use their initial and final scores as anchor points. The earlier paper described the derivation and administration of the measure based on a sample of first-year medical students at Edinburgh University. It contrasted conventional aggregate scoring of symptoms with a criterion approach, showed differences between males and females in prevalence and inception rates of spells of symptomatic distress, and illustrated the advantage of 'interval measures' beyond the use of multiple unrelated cross-sectional assessments. A further paper (Surtees & Tansella, 1990) has evaluated the relationships between the I-GHQ and more formal interview measures of psychiatric disorder based on Scottish and Italian samples. The results, utilising relative operating characteristic analysis, have shown the screening potential of the I-GHQ to be broadly equivalent to that of the full GHQ questionnaire.

The present paper has two aims, the first of which is to provide some additional validity data for the I-GHQ technique. Since the I-GHQ describes spells of symptoms rather than measurements at a single time point, validity cannot be formally assessed in the conventional way by correlations with other 'single time point' measures. However, the student study did provide other measurements of symptoms present at the beginning of the academic year, at the time of follow-up six months later, and at the times when the students felt most anxious and most unhappy. This information may be used to discriminate between different groups of students described by the I-GHQ. For example, those students who, according to the I-GHQ, had recovered from initial symptoms during the study period should show high values on other symptom measurements at the start of the year and low values later. Conversely, students who, according to the I-GHQ, suffered a new spell of symptoms still ongoing at follow-up should report relatively low symptom levels at the beginning and high at the end. In the first part of the present paper, discriminant function analyses are used to assess the magnitude of such relationships, and thus indirectly to test the validity of the I-GHQ.

The second aim of the study is to discriminate between groups differentiated by the I-GHQ using a set of predictor variables, including gender, childhood background, personality, social support, academic problems and life events experienced by the students during their first year. While the authors know of no studies of students which use spells of symptoms as the dependent variable, much has already been written about the problems of first-year medical students. Many reports indicate that the study of medicine is stressful. Lloyd & Gartrell (1984) found that medical students were intermediate in symptomatology between out-patients and the general population, with obsessive–compulsive symptoms much in evidence and anxiety and depression to a lesser degree. In the UK, Firth (1986) estimated the prevalence of emotional disturbance in fourth-year medical students to be 31.2%, compared with 9.7% for young unemployed people. Much of this excess symptomatology may be short-lived and fail to meet the criteria for psychiatric caseness (Wells *et al*, 1987), but none the less the study of Zoccolillo *et al* (1986) found a rate of probable major depression (by DSM–III criteria) which was three times that in the general population. Depressed mood (Clark *et al*, 1988) and recent adverse life events (Lloyd *et al*, 1980) have both been found to be related to academic performance, but the effects are not large, and in the case of depressed mood may be accounted for by other underlying variables.

Many attempts have been made to explain individual differences among medical students. Sex differences have been found in some studies (Lloyd & Gartrell, 1984; Hohaus & Berah, 1985; Zoccolillo *et al*, 1986; Eric *et al*, 1988). Childhood background may also be implicated, with high levels of parental affection in childhood being protective against symptoms (Richman & Flaherty, 1986). Personality variables have been studied, Zeldow *et al* (1988) showing that students who were high in both "power and intimacy motivation" had more symptoms than other students. Richman & Flaherty (1985, 1986) found that interpersonal dependency and external locus of control may be better as predictors of symptoms than is social support. This latter variable seems less reliably protective against symptoms during first-year medical school than in other environments (Foorman & Lloyd, 1986).

Method

All first-year medical students at Edinburgh were approached within four weeks of enrolment. Of 181 eligible students, 175 were successfully interviewed (96.7%). A second interview was sought at the start of the third term, and carried out on 173 students (98.9% of those initially seen) during April and May, prior to their end-of-year exams.

Measures at first interview

Age, sex, marital status, type of accommodation and sources of finance for medical training were noted.

Depression, anxiety, fatigue, headache and backache during the previous month were assessed using analogue line and paired-comparison methods (Miller & Ingham, 1979). Five statements representing increasing levels of each symptom were presented. In the analogue line technique, statements were placed along a 10 cm line, and the subject was asked to place a mark across the line (between statements if he/she wished) to represent how he/she had been feeling during the past month. The distance from the top of the line is measured to the nearest 0.5 cm, giving a 20-point scale. For anxiety the five statements were "I never worried about anything", "I got a bit worried occasionally", "I often got worried about things", "I tended to worry a great deal" and "I was always in a state of terrible worry and anxiety". For depression they were "I never felt unhappy", "I sometimes felt a bit unhappy", "I was quite often in low spirits", "I frequently felt very miserable" and "I always felt very miserable and depressed". In the paired-comparison method, selected pairs from the same five statements were presented in tree form. The subject was asked to decide which member of the first pair was nearer the truth, and the choice determined the next pair presented. The method yields an eight-point scale, and is illustrated in the Appendix.

In addition, the 30-item General Health Questionnaire (Goldberg, 1978) was administered.

Ratings were made of quality of relationships (if any) with girlfriend/boyfriend, close friend in Edinburgh, close friend at home, and the relative to whom the student felt closest. Each was scored as excellent, intermediate or none at all.

In addition, an assessment was made of diffuse support. This was the extent to which the subject engaged in more-superficial contacts with classmates, relatives, people in the place of residence and others. An eight-point scale was used (Miller & Ingham, 1979), ranging from a score of 1 for a very large number of people (80+) to whom a student might chat at least once a fortnight, to 8 for nobody at all.

For coping, a modified version of the scale described by Miller *et al* (1985) was used. Each student recollected three important events which had occurred during the previous four years, and then answered a series of questions about how he/she had coped with the circumstances. From the answers, a score on 'maladaptive coping' (Miller *et al*, 1985) was derived by summing the number of occasions the student had coped by smoking, drinking, ruminating, being angry with himself/herself or being angry with others.

Three scales were used to measure personality, the first being the Rosenberg Self-Esteem Scale (Rosenberg, 1965).

The second was the Parker Parental Bonding Instrument (PBI; Parker *et al*, 1979). This assessed the extent to which maternal and paternal caring and overprotection had been provided during the student's childhood. Factor analysis showed that the four variables measured could be reduced to two: 'having a good mother' = maternal caring minus maternal overprotectiveness, and 'having a good father' = paternal caring minus paternal overprotectiveness.

The third measure of personality used was an abbreviated version of the Personality Assessment Schedule (PAS; Tyrer & Alexander, 1979). Six of the 24 personality traits were measured: introspection, shyness, vulnerability, sensitivity, aloofness and suspiciousness. Each trait was measured in two ways, the first using the interview method of Tyrer & Alexander (1979) and the second using the answers to the key questions for each trait expressed as four-point Likert-type scales. Factor analysis indicated that scores on three of these traits – vulnerability, sensitivity and introspection – could be combined into a factor which is labelled 'vulnerable personality'.

Academic ability was measured by the university's nine-point grading system, based mainly on A-level and Scottish higher examination results.

Second interview

At the second interview, the symptom measures and the GHQ were administered as in the first interview.

Secondly, the I-GHQ was used. Each student described the changes which had taken place during each month since the start of the academic year in 12 symptoms selected from the GHQ. Current and start-of-year GHQ ratings on these symptoms were used as anchor points. The resulting charts of changes in symptoms formed the basis for deciding when, if at all, the student had met the study criteria for anxious or unhappy moods. For the present paper, a criterion-based scoring system was applied in which an episode or 'spell' of symptoms was considered to be present during any time period in which either or both of two designated key symptoms – "nervous and strung up all the time" and "feeling unhappy and depressed" – were in evidence, regardless of any of the other ten symptoms. The adoption of this scoring scheme therefore allows a 'spell' to be defined through the presence of only one key symptom sustained over a period of one month. The main reason for such a minimal criterion was to allow exploration of the usefulness of the I-GHQ approach even at this level of symptomatology. In practice, this 'low' threshold was exceeded at some stage by 91.7% of the 108 students who had spells of symptoms. A discussion of the consequences on 'symptom spell' rates of imposing more demanding symptom criteria is given elsewhere (Surtees & Miller, 1990). No attempt was made to apply any criterion of impairment of function. The student could then be classified into one of six groups: (a) well throughout the study period, (b) recovered from an initial symptom spell, (c) new spell of symptoms but recovered, (d) new spell of symptoms still ongoing at follow-up, (e) multiple spells and (f) continuously symptomatic.

Thirdly, a brief assessment was made of whether there had been any episodes of psychiatric disturbance meriting at least GP consultation, prior to university entry.

Fourthly, analogue line and paired-comparison ratings were made of depression and anxiety as recollected by the student for the times at which he/she had felt most miserable and most anxious since coming to university. These times were classified as (a) no such time, (b) now, (c) on first arrival, and (d) at some other time.

All first-interview measures of social contacts were repeated, and the quality of relationship with a girl/boyfriend was further subdivided into four categories: (a) steady – students who had a girl/boyfriend at first interview whom they did not change; (b) gain – students who had no girl/boyfriend at first interview but who acquired one during the year; (c) loss – students who lost an initial girl/boyfriend during the year; and (d) no girl/boyfriend at any time during the year.

An initial list of life events modified from previous work (e.g. Miller *et al*, 1985), was completed, covering the period since the student came to university. Each incident identified by the student was probed to establish the circumstances surrounding its occurrence. The resulting material was classified into life events and long-term difficulties and rated in various ways using the methods of Brown & Harris (1978) and Miller *et al* (1987). The ratings derived were (a) total degree of threat/difficulty, divided into academic and non-academic threat; (b) personal losses (i.e. loss of relationship with somebody close); (c) impaired-relationship stress, reflected in rows and arguments with others; and (d) number of rows, with friends, relatives, landladies and others – a measure of impaired relationships as perceived by the students themselves.

Results

Discrimination in terms of symptom information

In Tables 1 and 2 the students, classified in six groups on the basis of their experience of spells of psychological

Table 1
Percentage of the sample in each I-GHQ group according to the times of reported maximum unhappiness and anxiety

	The most unhappy time				The most anxious time			
	Really no such time	Now (second interview)	On first arrival at university	Some other time since arrival	Really no such time	Now (second interview)	On first arrival at university	Some other time since arrival
(1) Well throughout ($n = 65$)	38.5	6.2	10.8	44.6	23.1	15.4	13.8	47.7
(2) Recovered from initial symptom spell ($n = 30$)	16.7	0.0	13.3	60.0	6.7	10.0	20.0	63.3
(3) Recovered from new symptom spell ($n = 21$)	9.5	0.0	14.3	76.2	14.3	19.0	14.3	52.4
(4) New symptom spell still ongoing ($n = 20$)	5.0	10.0	0.0	85.0	15.0	35.0	0.0	50.0
(5) Multiple symptom spells ($n = 22$)	0.0	13.6	18.2	68.2	4.5	22.7	18.2	54.6
(6) Continuously symptomatic ($n = 15$)	6.7	20.0	6.7	66.6	6.7	46.7	6.7	39.9

Table 2
Mean levels of anxiety and depression in each I-GHQ group at three points in time

	Anxiety: mean analogue line rating score[1]			Depression: mean analogue line rating score[1]		
	On arrival	At second interview	At the most anxious time	On arrival	At second interview	At the most unhappy time
(1) Well throughout ($n=65$)	4.31	4.40	5.83	3.14	3.51	5.82
(2) Recovered from initial symptom spell ($n=30$)	6.83	4.87	8.23	6.17	4.03	7.30
(3) Recovered from new symptom spell ($n=21$)	4.62	4.71	6.71	3.29	4.33	9.00
(4) New symptom spell still ongoing ($n=20$)	5.45	7.50	8.25	3.70	5.70	9.80
(5) Multiple symptom spells ($n=22$)	6.91	6.91	8.77	5.95	5.45	9.82
(6) Continuously symptomatic ($n=15$)	7.73	9.00	9.79	7.20	6.93	11.14
All groups ($n=173$)	5.54	5.60	7.34	4.46	4.50	7.87

[1] Range 0–20.

symptoms, are described in terms of the other symptom information available from the study.

Table 1 shows that there is some correspondence between I–GHQ group membership and common-sense expectation regarding the times at which students reported being most unhappy and anxious. For instance, among students judged on the I–GHQ to be well throughout, 38.5% remembered no particular time at which they had been most unhappy. This was higher than the corresponding proportion in any other I–GHQ group. Of the I-GHQ group recovering from an initial symptom spell, relatively high proportions of students claimed that their worst times were on first arrival. The criterion-based scoring of the I–GHQ, as used here, does not differentiate between depression and anxiety. Had this been done, the correspondences might have been even closer.

Table 2 also underpins the classification of the I–GHQ groups. The group who were well throughout have below-average anxiety and depression levels at all times. Those who recovered from initial symptoms start above the average levels and end below them. High scores within this group at the most anxious and most unhappy times may reflect a tendency for worsening of an initial symptom spell before improvement. The group developing and recovering from a spell of symptoms show an above-average level of depression at their most unhappy time and below average anxiety/depression levels on arrival and at follow-up. Within this group, the effect on anxiety seems much less dramatic than that on depression – suggesting that most of the symptom spells which developed were of depression rather than anxiety. Students who developed symptoms which were still ongoing at reassessment have low initial and high follow-up anxiety and depression. The multiple-spell and continuously symptomatic groups manifest high levels of anxiety and depression at all three time points, with the continuously symptomatic group being particularly high. Table 2 is based on the analogue line ratings of anxiety and depression. Paired-comparison scores provide an essentially similar picture, and in the analyses that follow the two measures were combined by first standardising each one and then averaging the standard scores.

Discriminant function analysis was used as a formal test of the correspondence just indicated. This technique (see e.g. Norusis, 1985) may be seen as a form of multiple regression in which the criterion to be predicted (the symptom-spell groups) consists of a nominally scaled set of categories. One or more linear discriminant functions – weighted combinations of the predictor variables – are derived along which the groups show maximum separation. The composition of these functions indicates which predictor variables are associated with the various symptom-spell groups. Wilks λ (the ratio of the within-groups sum of squares to the total sum of squares) is a statistic which indicates the success of the discrimination. It varies from 1, for no discrimination at all, to 0 for perfect discrimination. After the functions have been derived, they may be used to predict the group membership of each individual case. Comparison of predicted to actual group classifications affords another criterion of the effectiveness of the discriminant analysis and also allows the investigator to see which groups are well predicted by the available predictor variables and which are poorly predicted.

Taken separately, the times of maximum unhappiness (expressed as three dummy variables) and the levels of anxiety and depression on arrival, at second interview and at the worst time all discriminate significantly between the I–GHQ classified groups ($P<0.001$). However, the times of maximum anxiety do not discriminate significantly. After the variables were entered in stepwise fashion into the analysis, only three variables remained significant. These were level of depression on arrival, level of anxiety at follow-up and level of depression at the most unhappy time. One discriminant function corresponds to each of these variables. Level of depression on arrival broadly separated group 2 (high level) from groups 3 and 4 (low). Level of anxiety at follow-up separated groups 4, 5 and 6 (high) from the rest. Level of depression at the most unhappy time separated groups 2, 3 and 5 (high) from the rest. Wilks λ was found to be 0.41 ($P<0.001$). Using prior probabilities proportional to size, the classification functions correctly placed

89.2% (58/65) of the group who were well throughout
40.0% (12/30) of the recovery group
19.0% (4/21) of the group recovered from a new episode

40.0% (8/20) of the group with a new episode still ongoing
4.5% (1/22) of the multiple-episode group
60.0% (9/15) of the continuously unhappy group.

Overall, the percentage correctly classified was 53.2% as against a chance expectation of 22.3%, and this would probably have been higher had the I–GHQ been divided into anxiety and depression components.

Discrimination in terms of non-symptom information

Eight of the variables described under 'Method' contributed significantly to the discrimination between the six I–GHQ categories at the 0.02 level or better. These were as follows:

(a) having a 'good' mother
(b) support provided by relatives, at follow-up
(c) at least one personal loss during the academic year
(d) vulnerable personality
(e) suspicious personality
(f) the number of rows
(g) diffuse support, at first interview
(h) girl/boyfriend relationship classified into four categories as above.

Six other variables were found to be significant discriminators between the groups at the start of the analysis, but did not add significantly to the discrimination once the eight variables listed above were entered. These were sex of student, having a 'good' father, impaired-relationship stress, academic threat, non-academic threat, and a factor variable representing coping, self-esteem and previous psychiatric illness. Of these, impaired relationship, academic threat and non-academic threat were not needed once rows and loss were entered. The other three variables were non-significant once personality and having a good mother were entered. Table 3 gives the mean levels of the discriminating variables for each I–GHQ group. Wilks λ after entry of the eight significant variables was 0.35 ($P < 0.001$).

Three out of five possible discriminant functions were significant beyond the 0.01 level and there was a fourth of borderline significance ($P = 0.058$). These four functions were rotated by the varimax method. After rotation, the discriminations achieved and the ways in which the predictor variables loaded were as follows.

Function 1 discriminated the continuously unhappy students from those well throughout (with other groups intermediate). Vulnerable personality, lack of diffuse support and presence of a steady girl/boyfriend predicted membership of the continuously unhappy group.

Function 2 discriminated the continuously unhappy group from the group recovering from a new symptom spell. *Good* relative support and a suspicious personality indicated the continuously unhappy group, while intermediate relative support and gain of a girl/boyfriend indicated recovery from a new symptom spell.

Function 3 distinguished students with a new symptom spell still ongoing from students well throughout. Many rows and loss of girl/boyfriend correlated with the former group, and having a good mother and no girl/boyfriend with the latter.

Table 3
Mean levels of the discriminating variables in the I–GHQ groups

	Good mother[1]	Vulnerable personality[2]	Suspicious personality[2]	Personal loss[3]	Number of rows	Diffuse support first interview[4]	Relative support, at follow-up[5]			Girlfriend/boyfriend relationships[6]			
							Good	Moderate	None	Steady	Gain	Loss	None
(1) Well throughout ($n = 65$)	23.40	−0.37	−0.02	0.18	0.31	2.70	0.29	0.65	0.12	0.12	0.14	0.14	0.60
(2) Recovered from initial symptom spell ($n = 30$)	19.67	0.35	0.05	0.37	0.53	3.17	0.20	0.80	0.00	0.23	0.17	0.23	0.37
(3) Recovered from new symptom spell ($n = 21$)	16.14	−0.20	−0.51	0.52	0.67	3.00	0.14	0.76	0.09	0.14	0.33	0.19	0.33
(4) New symptom spell still ongoing ($n = 20$)	16.62	−0.10	0.21	0.40	1.40	2.90	0.30	0.60	0.10	0.15	0.25	0.35	0.25
(5) Multiple symptom spells ($n = 22$)	16.04	0.42	−0.32	0.18	0.77	3.23	0.32	0.68	0.00	0.32	0.18	0.09	0.41
(6) Continuously symptomatic ($n = 15$)	15.67	0.68	0.87	0.47	1.20	3.73	0.33	0.27	0.40	0.33	0.07	0.13	0.47
Overall	19.48	0.00	0.00	0.31	0.65	3.0	0.27	0.65	0.08	0.19	0.18	0.18	0.45

[1] Score = maternal care – maternal overprotection on the PBI.
[2] Factor score.
[3] Dichotomy
[4] Low scores represent good diffuse support.
[5] Represented by two dummy variables scored 1 or 0, but all three categories tabulated for completeness
[6] Represented by three dummy variables 1 or 0, but all four categories tabulated for completeness

Table 4
Classification of students and characteristics of each I–GHQ group based on discriminant analysis

Group	Characteristics of students in the group	% (and proportion) of group correctly classified	Chance expectation	% (and proportion) of predictions correct (true-positive rate)	% (and proportion) of predictions incorrect (false-positive rate)
(1) Well throughout (*n* = 65)	'Excellent' mother. No girl/boyfriend. Highly supportive relatives. Non-vulnerable personality. High diffuse support early in the year. Few rows since arrival Little personal loss since arrival.	87.7 (57/65)	37.5 (24.4/65)	58.8 (57/97)	41.2 (40/97)
(2) Recovered from initial symptom spell (*n* = 30)	Average mother. Moderately supportive relatives. Vulnerable personality. Few rows since arrival.	36.7 (11/30)	17.3 (5.2/30)	52.4 (11/21)	47.6 (10/21)
(3) Recovered from new symptom spell (*n* = 21)	Below-average mother. Gain of girl/boyfriend. Moderately supportive relatives. Non-vulnerable personality. Non-suspicious personality Personal loss since arrival.	28.6 (6/21)	11.9 (2.5/21)	50.0 (6/12)	50.0 (6/12)
(4) New symptom spell still ongoing (*n* = 20)	Below-average mother. Loss of girl/boyfriend. Many rows since arrival. Personal loss since arrival.	50.0 (10/20)	11.6 (2.3/20)	66.7 (10/15)	33.3 (5/15)
(5) Multiple symptom spells (*n* = 22)	Below-average mother. Steady girl/boyfriend. Highly supportive relatives. Vulnerable personality. Non-suspicious personality.	22.7 (5/22)	12.7 (2.8/22)	33.3 (5/15)	66.7 (10/15)
(6) Continuously symptomatic (*n* = 15)	Below-average mother Steady girl/boyfriend Relative support *either* non-existent *or* high Vulnerable personality. Suspicious personality. Low diffuse support early in the year. Many rows since arrival Personal loss since arrival.	53.3 (8/15)	8.7 (1.3/15)	61.5 (8/13)	38.5 (5/13)

Function 4 had two groups at one extreme, these being those who were continuously unhappy and those who recovered from a new symptom spell. These were distinguished from three other groups at the other extreme – the well-throughout group, the group who recovered from an initial spell and the multiple-episode group. No relative in whom to confide and personal loss loaded on the continuously unhappy end. Table 4 gives a more complete description of the most important characteristics of each I–GHQ categorised group as found in the analysis and gives the numbers of students correctly classified within each group. The overall percentage correctly classified was 56.1% (chance expectation 22.3%).

Discussion

The first objective of this study was to assess the relationships between groups as categorised by the I–GHQ and other symptom variables. It was found that these were reasonably strong and in accord with common-sense expectation. Three variables were useful in discriminating I–GHQ groups: depression on entry to university was high in those who remained continuously unhappy, in those who recovered from an initial episode and in those who had multiple episodes; relatively high anxiety at follow-up was associated with being continuously unhappy, with having a new episode still ongoing and with multiple episodes; and a relatively high level of depression at the time when the student remembered being maximally unhappy predicted membership of the group who suffered an episode and had recovered, or of the group who suffered an episode which was still ongoing. Overall, the discriminant functions were able to classify 53.2% of students correctly as against an overall chance expectation of 22.3%. Five other variables (anxiety on entry, anxiety at the most unhappy time, depression at follow-up, time at which maximum anxiety occurred, and time at which maximum depression occurred) were also tried in the discriminant analysis but failed to add significantly to the discrimination at the entry of the other three variables. This comes as no surprise. The five non-selected variables were highly related to the three that were selected, and as can be seen in Tables 1 and 2 have similar effects to the three chosen. As it is initial depression (rather than anxiety) and follow-up anxiety (rather than depression) that enter the analysis, this suggests that episodes present at the start of the year may have tended to be depressive episodes (with key symptom "feeling unhappy and depressed"), while those at the end, as examination time drew near, were more usually anxiety episodes (with key symptom "nervous and strung up all the time"). Taking all these results together, we believe that the evidence presented above is consistent with the view that the items comprising the I-GHQ allied to the principle of the LIFE enabled a reliable and valid assessment of the course of minor spells of symptoms.

The second objective was to indicate some of the possible applications of the I-GHQ using the relationships generated between I-GHQ identified groups and other variables. In a more traditional approach, standard GHQ scores would be available (binary or aggregate score) at time 1 and time 2. Analysis would centre on predictors of whether the GHQ score changed from time 1 to time 2. The method used in this study covers the interval between the times of interview. Thus a student who was, for instance, a low scorer at both times, is further classified. He/she might belong either to the group well throughout, to the group recovered from a new symptom spell, or (conceivably) to the multiple-spell group – surely three very different cases. It proved possible to use other variables from the study to make what seem to be reliable and meaningful predictions of group membership. For instance the largest group, who were well throughout the study period, tended to have experienced a happy childhood, to have supportive relatives, to be outgoing and insensitive to criticism, to avoid involvement with a girl/boyfriend during this difficult time and to become acquainted (at least) with many people shortly after arrival. Another group which was well predicted (50% correctly classified as against 11.6% chance expectation) was the group with a new spell of unhappiness still ongoing. The basis of prediction here was mainly the experience of recent life events. Loss of a girl/boyfriend, rows and arguments of all kinds were common and there was no sign that these students had particularly vulnerable personalities. Recovery from initial unhappiness was indicated by a reasonably happy childhood coupled with a more vulnerable personality. In the group which suffered an episode but recovered were found those with personal losses, non-vulnerable and suspicious personalities, and gain of a new girl/boyfriend. The multiple-episode group was poorly predicted (22.7% correct as against 12.7% by chance) but they had some tendency to have a steady girl/boyfriend, a vulnerable but non-suspicious personality and highly supportive relatives.

However, it is the continuously symptomatic group which seems worthy of most attention. There were only 15 students (8.7% of the total sample) in this group and they were well predicted mostly by variables measured at first interview. They tended to perceive their mothers as uncaring and overprotective. Support from a relative tended to be either non-existent or paradoxically very good (perhaps indicating immature dependence on a relative other than the mother). They were introspective, vulnerable, sensitive and suspicious. They failed to make friends quickly on arrival. There was some evidence of rows and of personal loss of a close friend during the academic year. A large proportion of the group had a steady girl/boyfriend. Only one of these 15 students sought help from the counselling service during the study period. Surely here is a situation that might merit intervention. In the present sample (see Table 4) the discriminant functions selected 13 students as members of the continuously unhappy group and were right about 8 of these. Of the 5 who were misclassified, two were in the multiple-episode group. An offer of counselling early in the year to such students might not be too heavy an extra load on the service, and the yield of students who need help should be high.

Perhaps the most provocative result is the finding that it was rather more common to have a steady girl/boyfriend among those students that experienced either multiple spells or continuous symptoms. In these two groups 32.4% (12/37) had a steady opposite-sex friend as against 15.4% (21/136) in all other groups. Many of these girl/boyfriends were left behind at home, this being so to a greater extent among students with symptoms, where 7/12 steady girl/boyfriends were at home as against 7/21 in the other groups. There is also evidence that the quality of the steady relationship may be less good in symptomatic as opposed to asymptomatic students. Five out of the 12 symptomatic students rated their girl/boyfriends as less than perfect confidants, as against four out of 21 in the other groups.

Some comparison of the findings with those of other studies may be made. Richman & Flaherty's (1986) finding that adult depressive symptomatology at the start of medical school was related to maternal care was supported. In the studies of Zoccolillo *et al* (1986), where a four-weekly screening procedure with the Beck Depression Interview was followed by administration of the Diagnostic Interview Schedule for those scoring 9 and above, 22% of the students were screened positive at some time during their first two years of medical school and 12% suffered from major depression or probable major depression, whereas in our sample 62.4% suffered at least one spell of symptoms at some time during their first eight months and 8.7% were continuously symptomatic. However, when the criterion for a spell of symptoms was modified from the presence of either or both of the key symptoms (the minimum requirement) to the presence of one or more key symptoms together with four or more others, our figure drops to 24.9% – very close to the 22% found by Zoccollilo *et al.* Sex differences found in other studies were present in our sample also, with 48.4% of men as against 24.4% of women students being in the group who were well throughout (see Surtees & Miller (1990) for further details). Our finding is that this sex difference appears to operate indirectly, firstly because a smaller proportion of women (35.9%) than men (52.6%) do *not* have an opposite-sex friend during their first eight months ($c^2 = 4.85$, $P < 0.05$) and secondly because women tend to have higher scores on the vulnerable-personality variable (mean score for men $= -0.17$, for women $= 0.21$, $t = 2.45$, $P < 0.05$); thus, once it is known whether or not the student had a girl/boyfriend and what the student's personality score was, then knowing the sex of the student does not further aid the prediction of group membership. Finally, the results are compatible with the suggestion of Foorman & Lloyd (1986) that social support may sometimes be detrimental to health by involving stress-producing obligations. Students who did not have a girl/boyfriend during their first year in the somewhat stressful environment of medical school were the least likely to suffer from spells of symptoms at some time during the first eight months.

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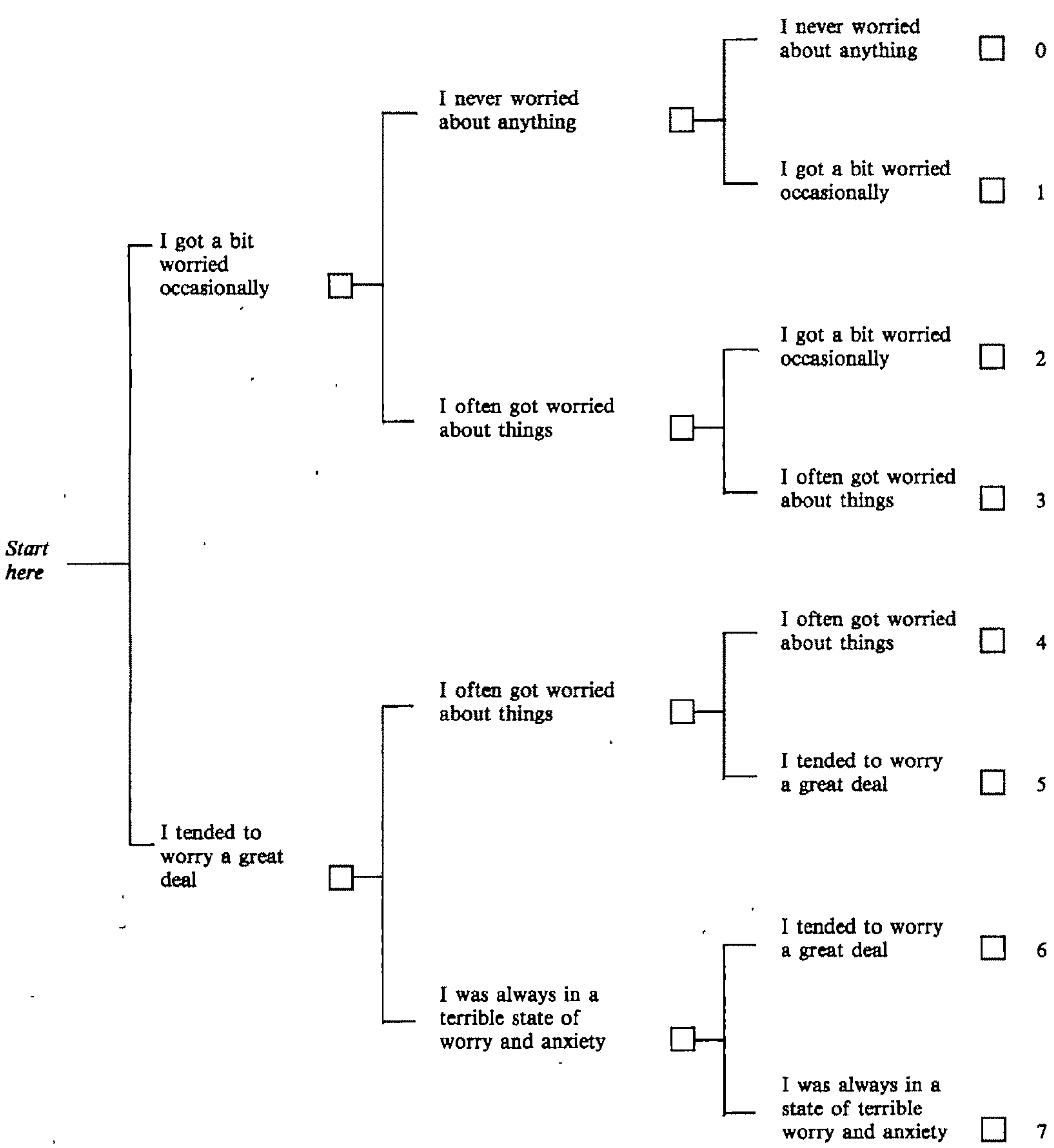
Appendix: paired-comparison method of symptom measurement

The method is illustrated below for anxiety. The subject commences by ticking which of the two statements "I got a bit worried occasionally" and "I tended to worry a great deal" was nearer the truth during the past month. This choice determines the next pair of statements presented. The layout was as shown below except that the scoring system was not included.

Remember. Think about how you have been feeling during the past month.


Score
Start here
I got a bit worried occasionally ☐
I tended to worry a great deal ☐
I never worried about anything ☐
I often got worried about things ☐
I often got worried about things ☐
I was always in a terrible state of worry and anxiety ☐
I never worried about anything ☐ 0
I got a bit worried occasionally ☐ 1
I got a bit worried occasionally ☐ 2
I often got worried about things ☐ 3
I often got worried about things ☐ 4
I tended to worry a great deal ☐ 5
I tended to worry a great deal ☐ 6
I was always in a state of terrible worry and anxiety ☐ 7

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Self-detoxification by Opiate Addicts
A Preliminary Investigation

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A study of 50 opiate addicts attending a London service for treatment of drug dependence found that 47 subjects had previously made at least one attempt at self-detoxification. These subjects reported 212 previous attempts. Although 30 subjects reported having managed to complete at least one attempt, the success rate per episode was low (24%). One of the most commonly reported methods, used by 28 subjects, involved an abrupt cessation of opiates ('cold turkey'). Of the drugs used in their attempts at self-detoxification, benzodiazepines were reported by 24 subjects and opiates by 20. Practical strategies such as distraction and avoidance were also used. Self-help detoxification materials for opiate addicts might be useful.

Most heroin addicts who are in contact with treatment services have already been using opiates for many years. At a needle-exchange programme, Stimson *et al* (1988) found that the average duration of intravenous opiate use for attenders was 7.7 years. Similarly, the average durations of opiate use for heroin addicts treated by a community drug team and in an in-patient drug treatment unit were 4.2 years and 6 years respectively (Gossop *et al*, 1989*a*). For many heroin addicts, their first contact with drug treatment services may not be their first attempt to come off drugs. However, little attention has been paid to the users' attempts to detoxify themselves.

With some other addictive behaviours, the evidence points to the important role of self-managed cessation. With cigarette smoking, for example, the majority of people give up without any formal treatment intervention (US Surgeon General, 1988). Schachter (1982), for example, found that 64% of his sample had successfully stopped smoking on their own. Similarly, it is increasingly clear that many people with alcohol problems also give up without treatment (Saunders & Kershaw, 1979).

It is unclear to what extent self-detoxification also occurs with opiate addicts. Although Ray (1964) stated that "many attempts at home cure [self-detoxification] . . . go unrecorded", it has only infrequently been the subject of study, and a review of the literature by Stall & Biernacki (1986) concluded that there had as yet been "little systematic research into spontaneous remission behaviour". In a study by Schasre (1966), although the subjects were not yet confirmed 'addicts', at least 9 of 40 reported having been physically dependent and giving up without treatment. However, the few studies that have been concerned with this issue have tended to focus more upon the social context in which self-attempts at remission may occur, and little attention has been paid to the manner in which abstinence may be achieved. Stall (1983) drew attention to the potential value of investigating "the ways in which people stopped taking drugs without formal treatment" and pointed out that not only is this relevant to construction of theories of addictive behaviour, but it may also be valuable in guiding the development of clinical interventions. From this position, the present investigation looks at a group of 50 opiate addicts: at whether they have attempted self-detoxification; at the circumstances associated with their attempts; at the type of strategies they adopted; and at the outcome of their attempts.

Method

All 50 subjects in this study were attending the drug dependence treatment services of the Maudsley Hospital in London: 18 were consecutive referrals to the in-patient and 32 to the out-patient/community drug team facilities. All subjects were dependent upon opiates as determined by clinical assessment and by repeated urine analyses.

Data were collected by means of a structured interview designed to collect information about previous experiences of self-detoxification. This interview was conducted with subjects in a clinical setting by a trained psychiatrist. For the purposes of this study, detoxification was defined as a deliberate attempt to achieve abstinence from opiates which was sustained for more than 24 hours; occasions on which withdrawal symptoms occurred because drugs were unavailable were excluded unless a decision was taken by the subject not to obtain opiates and to see through the withdrawal syndrome. Self-detoxification was defined as any such attempt which was made without clinical assistance.

One measure that was taken during the interview was of the number of attempts that had been successfully completed. Previous research has shown that the heroin withdrawal syndrome may persist for approximately seven to ten days after the last dose of opiates is taken (Gossop, 1989; Gossop *et al*, 1989*b*). For this reason, the present study adopted an operational definition of 'completion' as being either abstinence for seven days after the last dose of heroin or methadone for abrupt 'cold-turkey' methods, or seven days free of opiates after the discontinuation of any drugs to self-medicate withdrawal symptoms for those detoxification attempts in which opiate or other types of drugs were used.

Measures were also taken of specific pharmacological and behavioural strategies adopted by the subjects during detoxification attempts. Subjects were explicitly asked to describe those strategies that were deliberately used to help with detoxification in order to distinguish them from coincidental and ongoing use of other drugs, or from behaviour not specifically adopted as a coping strategy.

Results

There were 35 men and 15 women. The average age of the subjects was 29.4 years (range 21–40). The average age at which they had first used opiates was 19.3 years (range 13–34), and the mean duration of opiate use was 10.2 years (range 2–21). Thirty-nine were dependent upon heroin as their main daily drug; seven were dependent upon methadone, and four upon a combination of heroin and methadone. Thirty-four were intravenous drug abusers, and ten used heroin by inhaling the vapour ('chasing the dragon'). Four subjects used methadone orally, one person used opiates by intramuscular injection and one person reported no consistent pattern of drug administration. The mean daily dose of heroin was 0.8 g (assuming 1 g of street heroin = 1000 mg) with a range of 0.25–2.5 g. The mean daily dose of methadone was 58 mg (range 40–70).

Forty-seven of the 50 subjects had previously tried to detoxify themselves from opiates without medical assistance; three subjects had never tried. Thirty-six described having made two or more previous attempts. Ten subjects reported ten or more attempts. The total number of self-detoxification attempts reported was 212, with an average of 4.2; however, the distribution of scores is skewed because of the few subjects who described a large number of attempts. All 50 subjects were asked what motivated their attempts at self-detoxification. The two most frequent reasons given concerned the negative consequences of continued opiate dependence (22 subjects) and factors associated with close relationships (15 subjects).

Thirty-four subjects had undergone previous medical detoxification. The mean number of medical detoxifications for the group was 3.3. Again, the distribution of scores was skewed, and 27 subjects described between one and three such treatment experiences. Thirty-nine had also had at least one experience of forced detoxification. The majority of these occurred while in prison or police custody, although a number were the result of drug supplies becoming unavailable. The mean number of forced detoxification attempts was 3.0, with 22 subjects having had between one and three such experiences.

The correlation between duration of opiate use and the number of self-detoxification attempts was not statistically significant ($r = 0.19$); however, there were statistically significant correlations between duration of opiate use and both forced and medical detoxification ($r = 0.30$, and $r = 0.33$, respectively, $P < 0.05$). Attempts at self-detoxification were not correlated with other types of detoxification, but the number of forced detoxifications was positively correlated with medical detoxifications ($r = 0.45$, $P < 0.001$).

Methods used in self-detoxification and outcome

The 47 subjects made 212 self-detoxification *attempts*. Of these, 107 attempts involved abrupt cessation ('cold turkey'), and 105 involved detoxification with the aid of self-administered drugs. Twenty-eight of the 47 subjects described having had at least one attempt to detoxify themselves from opiates by 'cold turkey', and 18 subjects described this as the method most often used.

Twenty-four subjects had used benzodiazepines in an attempt at self-detoxification and opiates were also mentioned by 20 subjects. Of the benzodiazepines, diazepam was most often mentioned, by 12 subjects; temazepam was mentioned by nine, nitrazepam by six, and flunitrazepam and lorazepam by one. Of the subjects who used opiates as part of their self-detoxification attempts, reducing doses of illicit heroin was mentioned by ten, methadone by 12, and DF118/dihydrocodeine by seven. Opiates were commonly used in gradually reducing doses over 2–14 days. Other drugs that were commonly used included cannabis (22 subjects) and alcohol (18 subjects). Although subjects were not specifically asked about the effectiveness of each drug, 19 reported that benzodiazepines were helpful in reducing withdrawal problems (in particular sleep problems), and three stated that these drugs made matters worse. Twelve stated that cannabis made withdrawal worse and six that it reduced distress. Ten reported that alcohol made withdrawal worse and seven that it produced some improvement. The less frequently used drugs included amphetamines (3 subjects), cocaine (3), barbiturates (4), clonidine (2), and ibuprofen (1). Where these drugs were used in self-detoxification, these were taken over 1–21 days (mean 6.2 days).

The data on outcome for the subjects showed that of the 47 subjects who had attempted a self-detoxification, 17 had failed at each attempt; 30 had achieved abstinence on at least one occasion, of whom 12 had achieved abstinence on more than one occasion.

When outcome was investigated in terms of the 212 self-detoxification attempts, 51 (24%) led to abstinence of one week or more, 30 (14%) led to abstinence which lasted for four weeks or more, and seven (3%) lasted for one year or more. The outcome was also studied in terms of the type of procedure used. Of the 107 attempts which involved an abrupt detoxification procedure, 67 (63%) failed within the first seven days, 23 (22%) failed after one to four weeks, and 17 (16%) led to longer abstinence from opiates. For the 105 attempts in which detoxification was done with the aid of self-administered drugs, 36 (34%) failed during the period in which withdrawal drugs were being taken, 35 (33%) failed during the first seven days after withdrawal medication had been discontinued, 21 (20%) failed between one and four weeks after withdrawal medication had finished, and 13 (12%) attempts led to longer abstinence. There is no difference between the outcomes for 'cold turkey' and detoxification with drug cover ($\chi^2 = 0.21$, d.f. 2, $P = 0.90$). The reason most frequently given for the failure of self-detoxification attempts included temptation associated with drug availability (23 subjects), lack of support (16 subjects), and severity of the withdrawal syndrome (24 subjects). Several subjects mentioned pain, insomnia and stomach cramps as specific withdrawal symptoms that led to failure.

The behavioural coping strategies reported by subjects as having been used during self-detoxification included distraction through exercise and physical activity (22 subjects), staying in bed (13 subjects), moving away from the neighbourhood (12 subjects), physical relaxation such as hot baths, massage, etc. (10 subjects), lying down and watching television and staying indoors (9 subjects), support and talking to others (8 subjects), and cognitive strategies to counter the feeling of craving (3 subjects). One person reported using a symbolic gesture - pouring methadone down the sink.

Attitudes to supervised detoxification

Thirty-four subjects had undergone supervised (medical) detoxification. The main advantages of medical detoxification were reported to be the control and structure provided (21 subjects), and the efficiency of the method in terms of reducing withdrawal distress (14 subjects). The disadvantages of supervised detoxification identified by the sample included having to conform to the rules and restrictions required by treatment programmes (12 subjects), temptations to use drugs during out-patient detoxification programmes (5 subjects), and problems associated with the medications used during detoxification - these included complaints that too much methadone was prescribed, complaints that withdrawal from methadone was worse than that from heroin, and complaints about not receiving night sedation (5 subjects). Twelve subjects reported that there were no disadvantages associated with supervised detoxification.

Discussion

Opiate addicts attending this treatment centre have had many experiences of self-detoxification. It is unclear whether our results can be generalised to the wider population of opiate abusers who do not attend treatment services. Forty-seven of our sample (94%) had previously attempted to come off drugs without medical assistance, and 36 of them (72%) had made such an attempt on more than one occasion. Between them, 47 of our sample of 50 subjects had made 212 attempts. More subjects had tried to detoxify themselves than had done so with medical supervision. Forced detoxification (generally in prison or police custody) was also more common than medical detoxification.

The results show that the longer a person had been using opiates, the more likely he/she was to have had experiences of medically supervised or forced detoxification. However, the number of attempts at self-detoxification was not related to duration of opiate use. It is not clear how these findings are to be explained, but comments made by subjects during the interviews suggested that self-detoxification attempts were more likely to occur at an early stage of the person's drug-taking career. This was often regarded as an unpleasant experience and perhaps for this reason many subjects did not persist with self-detoxification.

The negative consequences of drug dependence (both the physical health problems and other factors associated with the addict's lifestyle), and social pressure from a family member or some closely related other person were the most commonly reported reasons for attempting to give up opiates. This is consistent with the findings of studies of other types of drug problem. In a study of people who had given up problem drinking without treatment, Tuchfeld (1981) suggested that the change process was essentially social in nature and rarely, if ever 'spontaneous' in the sense of developing without external influence; Pederson & Lefcoe (1976) noted that a concern about health was the most frequent reason given by ex-cigarette smokers for stopping. This point is made more colourfully by Orford (1986), who noted that change may be most likely to occur at times of crisis and cited the aphorism that "Drinkers seek change only because of livers, lovers, livelihood, or the law" (p. 105). Orford also suggested that people may drift out of addiction because of other social, psychological or environmental changes that have gradually taken place.

The subjects in our study used several different methods to detoxify themselves. The single most widely reported method was the abrupt cessation of opiate use with no drug cover ('cold turkey') reported by 28 subjects. Of the various types of drug that were used to self-medicate the withdrawal syndrome, benzodiazepines were frequently used. Almost half the sample reported that they had used benzodiazepines in an attempt to help with withdrawal, and over a third had used opiates. Although data were not systematically collected on the specific effectiveness of different types of self-medication, it is interesting that almost all of the subjects who used benzodiazepines reported that these were helpful, particularly in helping to deal with sleep problems. Not all of the self-administered drugs taken during detoxification were found to be helpful. The comments made about alcohol and cannabis, for example, suggest that although these drugs were commonly used, perhaps because of their wide availability, they were also often reported as making the problems of withdrawal worse.

Of the non-pharmacological means of coping with withdrawal, the most frequently mentioned strategy involved distraction through exercise or physical activity. A related strategy that was mentioned involved taking hot baths or having a massage. Avoidance strategies were also commonly reported. These included moving out of the neighbourhood to avoid drug contacts as well as staying in bed and staying indoors. It is striking that the majority of the coping strategies reported by our sample tended to be very practical in nature.

Thirty of the subjects (64% of those attempting detoxification) had succeeded on at least one occasion in becoming drug free without any medical assistance, and the results for the different approaches are similar. Most detoxification attempts fail at a relatively early stage. With 'cold turkey', more than half fail within the first week, another quarter fail before the completion of a month, while the remaining 16% remain drug free for more than a month. Much the same figures are found with the group who self-medicated with benzodiazepines or with opiates. It is interesting that high initial failure rate bears many similarities with the pattern of relapse previously described for various addictive behaviour by Hunt *et al* (1971) and Gossop *et al* (1989*a*), with the majority of initial relapse episodes occurring within the critical period of the first few weeks immediately after leaving treatment.

Although the majority of our subjects had managed successfully to detoxify themselves without treatment on at least one occasion, the chances of success *per episode* are low with about one-quarter of the attempts leading to abstinence of one week or more, and only 14% of the 212 attempts leading to an abstinence lasting for four weeks or more. Although good results have been obtained for in-patient detoxification programmes, with success rates of 70–80% (Gossop *et al*, 1989*a*,*b*), outcome figures for self-detoxification are comparable to the results found for subjects in out-patient programmes. Gossop *et al* (1986), for example, found that 17% of their out-patient group successfully completed an opiate detoxification programme, and DiClemente & Prochaska (1982) also found that the proportion of successes and failures were similar for cigarette smokers who attempted to give up either on their own or in a treatment programme. The similarity in outcome rates in this study and in that of Gossop *et al* (1986) raises a question about whether the types of problems facing opiate addicts who make a self-detoxification attempt may be similar to those for addicts in out-patient detoxification programmes. The reasons given by our subjects for failure included the temptations associated with the availability of drugs or potentially easy access to drugs, lack of support during detoxification, and the severity of withdrawal symptoms.

One important feature of our results deserves comment. It must be obvious that *all* of the previous detoxification attempts reported by the subjects must necessarily have failed to lead to continued abstinence from opiates since all subjects were drawn from a population that was addicted and seeking treatment. Relapse continues to present one of the central problems for the treatment of addiction and for many subjects the withdrawal syndrome presents an obstacle at the very start of the attempt to become drug free. Marlatt & Gordon (1985) have drawn attention to the importance of the prior provision of information about how to cope with relapse. Providing information about withdrawal has been shown to be useful in helping to reduce discomfort and distress during detoxification (Green & Gossop, 1988). In a community setting, self-help manuals have previously been used with cigarette smokers (Davis *et al*, 1984) and with drinkers (Robertson & Heather, 1985), and these have also been found to offer considerable promise. Much less is known about the relevance of self-help materials for opiate addicts. Among the information gathered in this study, there are practical hints and advice which could be given to addicts intending to attempt self-detoxification without medical assistance, and we plan to use the findings of this study to adapt previous self-help manuals which might be made available beyond the treatment population.

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Heavy Drinking as a Risk Factor for Depression and Dementia in Elderly Men

Findings from the Liverpool Longitudinal Community Study

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A random community sample of subjects aged 65 and over was re-interviewed after three years by psychiatrists using the GMS and HAS. The relationship between drinking history and current psychiatric morbidity was examined. Men with a history of heavy drinking for five years or more at some time in their lives were found to have a greater than fivefold risk of suffering from a psychiatric disorder at the time of the interview. Among this group past alcohol consumption was significantly higher for those with a current psychiatric diagnosis compared with those who were well. This association between heavy alcohol consumption in earlier years and psychiatric morbidity in later life is not explained by current drinking habits.

Available knowledge about the relationship between alcohol consumption and psychiatric illness has largely been derived from studies examining selective populations of alcohol abusers in contact with treatment agencies or medical services. These have been cross-sectional or short-term follow-up designs and have failed to address the possible long-term consequences of alcohol consumption on mental health. In addition, such studies run a risk of confusing psychiatric illnesses with symptoms related to current alcohol abuse or the effects of recent detoxification (Powell *et al*, 1982).

Co-existence of current alcohol problems and psychiatric symptoms is a common clinical finding. Depressed mood associated with alcohol abuse is widely recognised as being secondary to the alcohol abuse in the majority of cases, and affective symptoms usually disappear within several days to two weeks of withdrawal from alcohol (Schuckit, 1983). It is unclear what, if any, are the long-term effects of heavy alcohol consumption in terms of a liability to develop 'independent' affective disorder in later life.

The role of alcohol in the aetiology of dementia is an area which generates much debate (Thomas, 1986; Lishman, 1986). Evidence of characteristic neuropathological changes or of a distinct clinical picture supporting the concept of a primary alcoholic dementia have not been forthcoming (Victor & Adams, 1985). Numerous studies have demonstrated the detrimental effect of alcohol on cognitive function, although it is unclear whether overall quantity of alcohol consumed, duration of exposure to heavy intake, or a combination of these is of critical importance (Shaw & Spence, 1985). It is generally held that such cognitive deficits are to some extent reversible with abstinence in the majority of cases; however, there is a noticeable absence of attempts to investigate the influence of previous heavy drinking on brain functioning in later life.

Method

Historical data regarding alcohol use were gathered in the three-year follow-up phase of the Liverpool longitudinal study of continuing health in the community – a prospective investigation of psychiatric morbidity in the elderly. In the initial survey, at year 0, a random sampling of general practitioner lists provided 1486 eligible subjects, of whom 416 refused interview, giving a response rate of 72%. As a group, refusers were similar in age and sex to those interviewed. In all, 1070 residents (420 men, 650 women) aged 65 and over were interviewed at home by the year 0 team using a community version of the Geriatric Mental State schedule (GMS; Copeland *et al*, 1976). These interviewees provided a cohort of subjects for follow-up three years later when, in addition to the GMS, the History and Aetiology Schedule (HAS) was administered by a team of psychiatric raters blind to the findings at year 0. Further details of the sample, method, and tracing procedures used have been described elsewhere (Copeland *et al*, 1987; Davidson *et al*, 1988).

The GMS is a semistructured interview designed specifically for use with elderly persons. The schedule contains a section assessing current abnormal drinking patterns and alcohol-related problems; further details are described in an earlier report of alcohol use and abuse in this sample (Saunders *et al*, 1989). The HAS can be administered to the subject if no informant is available; it contains an alcohol section consisting of 15 items dealing with past as well as present drinking habits and problems. Respondents are asked to report past and current usual consumption of alcoholic beverages, together with ages at starting, change in consumption, or cessation of drinking. Estimates of past and current average weekly alcohol consumption are recorded for subjects with a history of regular drinking. Raters are required to make an intuitive judgement based on all relevant information elicited during the interview as to whether subjects have been drinking heavily for five or more years at some time in their lives.

Quantities of each alcoholic beverage consumed are converted into standard units (1 unit = 8 g absolute alcohol) per week for each subject. Differences between subject groups in average alcohol consumption were assessed using analysis of co-variance. Where relevant, adjustments have been made to allow for age-related effects. The significance of the differences in the proportions of each group falling into the various categories was assessed using the χ^2 test.

Results

Table 1 shows the proportions in each outcome category at three-year follow-up. Seven hundred and one (66%) subjects were re-interviewed. The HAS was incomplete for one man and seven women. Twenty-five men (9%) and two women (0.5%) had a history of heavy drinking – that is, were judged by the psychiatric interviewers to have been heavy drinkers for five years or more at some time in their lives. Informants were available for 32% of men in this group and 33% of men with no history of heavy drinking. Of the two women, one was diagnosed as a case of dementia, and the other had no significant psychopathology. The following analysis is confined to men.

Table 2 shows the distribution of psychiatrists' diagnoses by type of drinking history and the odds ratios for each diagnostic group. Eleven of the 25 men (44%) with a history of heavy drinking were given current psychiatric diagnoses compared with 30 of 256 men (12%) with no such history. Hence the odds in favour of having a psychiatric diagnosis of any type at the time of interview are 5.8 times higher among men with a history of heavy drinking than among the rest of male subjects ($P<0.0002$). Odds ratios for each of the three main diagnostic categories are shown. The risk is comparably raised for all of these although significance is not achieved for the 'other' diagnostic group. The two subjects with a history of heavy drinking in the 'other' diagnosis category included a case of phobic neurosis and a subject who was diagnosed as having Korsakoff's psychosis.

At some time in their lives 110 men (39%) had been regular drinkers, consuming alcohol on at least one occasion per week. Of these, 23 (21%) have ceased regular consumption, and of the 87 still drinking 68 (78%) have a figure for past consumption which differs from their current level of consumption.

Table 1
Outcome at year 3

	Males		Females		Combined	
	no.	%	no.	%	no.	%
Interviewed	282	67	419	65	701	66
Deceased	84	20	97	15	181	17
Refused interview	41	9.8	104	16	145	14
Missing	13	3.1	30	4.6	43	4
Totals	420	100	650	100	1070	100

Table 2
Psychiatrist's diagnoses of men with and without a history of heavy drinking

Diagnosis	History of heavy drinking		Rest of males		Odds ratio	Confidence limits
	no.	%	no.	%		
Depression	5	20	16	6.4	3.7	1.3–10.4*
Dementia	4	16	10	3.9	4.6	1.5–14.5*
Other	2	8	4	1.6	5.4	1.1–25.9
All diagnoses	11	44	30	11.7	5.8	2.6–13**
All males	25	100	256	100		

*$P<0$ 05, **$P<0.0002$.

Table 3 examines past and current alcohol consumption of men who have been regular drinkers by diagnostic category. A figure for past consumption was not available for three of the subjects judged to have been heavy drinkers. For the remaining 22, mean past consumption was 81.4 units compared with 28.1 units for the other 46 men. Within the group with a history of heavy drinking, the mean past consumption of subjects with no psychiatric diagnosis was 57.8, compared to 115.6 units per week for those with psychiatric diagnoses.

Of the 25 men with a history of heavy drinking eight are no longer drinking on a regular basis. Among the 17 continuing to drink, none was rated as having a current alcohol problem or to have consumed sufficient alcohol on the day of interview to interfere with performance. All four cases of dementia who had a history of heavy drinking had ceased heavy alcohol consumption well before the year 3 interview (mean 8.5 years, range 4–15). The absence of cognitive deficit on psychometric testing of these individuals at year 0 indicates that the onset of dementia occurred after heavy drinking had stopped. Reported duration of current depressive illness in the heavy-drinking group ranged from

Table 3
Mean alcohol consumption (units of alcohol per week) of men with and without a history of heavy drinking by diagnostic status

	History of heavy drinking		Rest of males		All males	
	units	no. of subjects	units	no. of subjects	units	no. of subjects
Past consumption						
All diagnoses	115.6*	9	33.8	5	86.4	14
Well	57.8*	13	27.4	41	34.7	54
Totals	81.4**	22	28.1	46	45.3	68
Current consumption						
All diagnoses	17.0	6	10.3	3	14.8	9
Well	17.7	11	13.9	67	14.3	78
Totals	17.5	17	13.7	70	14.3	87

*$P<0.05$, **$P<0.001$.

three months to two years, while reduction of consumption from previous heavy levels occurred between five and ten years before interview. Three of the 25 men with a history of heavy drinking admitted to having experienced psychiatric problems before the age of 65.

The average current weekly alcohol consumption of subjects with a history of heavy drinking is 17.5 units per week. This does not differ significantly according to diagnostic status. Average consumption of males with no history of heavy drinking is less (mean 13.7 units/week) but this difference is not statistically significant.

Discussion

Drinking behaviour varies during the lifespan of individuals and does not easily lend itself to accurate quantification or classification. As would be expected, there are considerable constraints operating when examining this complex subject in a community survey designed to cover the full range of psychiatric morbidity. While high inter-rater reliability of GMS items has been demonstrated (Copeland *et al*, 1976), the reliability and validity of HAS alcohol and other sections has yet to be reported. Adoption of the psychiatrist's intuitive judgement for lifetime occurrence of a period of heavy drinking means that information beyond the scope of the HAS can be taken into account. The validity of this criterion is supported by the analysis of reported levels of past consumption for this group.

An important advantage of a community survey over studies of treatment agency populations is the avoidance of selection bias resulting from an increased likelihood of alcohol abusers with additional psychiatric pathology seeking treatment (Schuckit, 1986). Although the data described are derived from an ageing cohort of the original random sample, the increased mortality associated with mental disorder which has been reported in this sample (Davidson *et al*, 1988) may well mean we are underestimating the degree of risk associated with previous heavy drinking.

Before postulating that heavy alcohol consumption is a causal factor for psychiatric illness in later life, one must consider whether heavy drinking in earlier years might have been secondary to psychological dysfunction which was the precursor of psychiatric illness – in particular depressive disorder. We find no evidence to support this explanation, considering that a past psychiatric history was elicited for only one depressed subject, and it is estimated that no more than 5% of male alcoholics are considered to have a primary affective disorder (Schuckit, 1983).

The observation that the increased risk associated with previous heavy alcohol consumption applies to a range of psychiatric morbidity rather than to any particular diagnosis might indicate a shared vulnerability to alcohol abuse and psychiatric disorder within the individual. However, the limited numbers within each diagnostic category may be masking the true degree of risk associated with a particular diagnosis relative to the others.

It has been reported that the elderly may be more likely to deny alcohol abuse compared with younger groups (Haberman, 1970). It is possible that subjects given a psychiatric diagnosis are in reality presenting with depressive or confusional symptoms which are secondary to current alcohol abuse. This seems improbable as interviewers were specifically required to consider whether current alcohol abuse or impairment due to alcohol could be responsible for symptoms at the time of interview. Alternatively, the question arises whether some characteristic of subjects with psychiatric illness (or their relatives) results in exaggeration of past alcohol consumption. However, we would expect such a tendency to be reflected in their reports of current drinking behaviour, which is not the case.

It has been estimated that 50–98% of alcoholics experience depressive symptoms while drinking or during a limited period following withdrawal (Schuckit, 1983). The findings of this study indicate that a significant proportion of heavy drinkers will experience such depressive symptoms even when alcohol has long ceased to be a current factor. This unexpected finding suggests that existing definitions of primary and secondary affective disorder may be too simplistic.

Explaining the relationship between alcohol and dementia also presents problems. Investigators examining risk factors for senile dementia of the Alzheimer's type (SDAT) have failed to identify alcohol as a significant risk factor (Rocca *et al*, 1986). However, as a rule these studies have been concerned with selecting and investigating what is presumed to be a single diagnostic entity. Consequently, they have employed inclusion criteria specifying the absence of indicators of past or present alcohol abuse. The difficulties in distinguishing 'alcoholic dementia' from Alzheimer's disease are considerable (Lishman, 1986). One interpretation of the findings reported here could be that a far higher proportion of cases of dementia are in fact 'alcoholic dementia' than has been hitherto suspected. However, this would not account for the delay in onset of detectable cognitive deficit following cessation of heavy alcohol intake.

An alternative explanation purporting a less direct link between heavy drinking and subsequent dementia arises from consideration of the hypothesis that chronic alcohol intake might cause premature ageing of the brain (Ryan, 1982). There is support for the view that Alzheimer's disease is a quantitative variant of normal ageing, with dementia appearing only when neuropathological changes reach a critical level (Brayne & Calloway, 1988). Thus the effect of chronic alcohol-related brain damage or of premature ageing due to alcohol may be insufficient for clinical recognition until the additive effect of normal ageing results in a critical level being reached. Such an explanation must remain tentative until a longitudinal, combined approach is taken to investigating the various neuropsychological, neuropathological, and epidemiological components.

If there is indeed a causal relationship between heavy drinking and later psychiatric illness, the preventive implications of identifying what is a potentially modifiable risk factor are obvious. This hypothesis is currently being tested prospectively in the Liverpool ALPHA project – an incidence study (funded by the Medical Research Council) of 6000 elderly community subjects. Although there have been fluctuations in *per capita* consumption of alcoholic beverages in Britain since the turn of the century, during the past decade it was at its highest level for 60 years (Royal College of Physicians, 1987). If the results of this study are confirmed and the trends for increasing alcohol consumption continue, the degree of associated risk of mental illness is likely to have major implications for health services in a society whose elderly constitute an increasing proportion of the population.

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Effects of Substance Abuse on Ventricular and Sulcal Measures Assessed by Computerised Tomography

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Computerised tomography (CT) was used to assess the possible effects of substance abuse on brain morphology. Polydrug abusers had significantly wider third ventricles than normal controls, with a positive correlation between age and ventricle:brain ratio (VBR). Assuming no effect of age, estimated quantity of substance abuse was not significantly related to ventricular and sulcal measures, except that alcohol consumption correlated positively with VBR and severity of cocaine use correlated negatively with sulcal width. When age of the subjects was partialled out, alcohol use showed a tendency for association with VBR; however, severity of cocaine use did not remain a significant predictor of cortical sulcal width. The findings suggest that chronic use of alcohol, but not necessarily of other commonly abused substances, produces brain atrophy.

Computerised tomography (CT) provides a non-invasive approach to study intracranial structure *in vivo*. CT studies have confirmed neuropathological (Courville, 1955) and pneumoencephalographic (Horvath, 1975) findings of cortical and subcortical atrophy in alcohol users (Ron, 1983; Wilkinson, 1982). However, despite evidence that commonly abused substances other than alcohol can injure or kill brain cells and produce vascular lesions (Roizin *et al*, 1972), less attention has been focused on the longer-term sequelae on brain structure of using such drugs. Previous CT studies of drug abusers have demonstrated the presence of brain abnormalities, ranging from vascular lesions to moderate enlargement of lateral ventricles, cerebellar atrophy and diffuse cerebral atrophy (Cala & Mastaglia, 1980; Leeds *et al*, 1983; Rumbaugh *et al*, 1980). These studies have been flawed by inadequacy of sample size (Rumbaugh *et al*, 1980), a lack of appropriate normal controls, the manner in which drug abuse histories were collected (Hill & Mikhael, 1979), or problems in the analysis of CT parameters (Cala & Mastaglia, 1980). Generally, the reported brain damage represented an extreme of pathology in chronic drug users and could have been non-specific. Other potentially confounding variables include the effects of ageing, possible head injury, history of drug overdose, toxicity of the vehicle in which the drug is self-administered, and the multiplicity of drugs used by a given individual.

The purpose of the present study was to examine two indices of brain atrophy in polydrug abusers and normal controls and to determine the extent to which atrophy was related to the use of alcohol or other abused substances.

Method

Forty male volunteers, aged 23–43 years, participated in the study, which was approved by the institutional review boards of the Johns Hopkins Medical Institutions and the Francis Scott Key Medical Center. They were recruited primarily through advertisements in local newspapers and were paid for their participation. Each subject gave informed consent after the procedures were fully explained. All subjects had histories of polydrug use, but were not currently dependent on any drug except nicotine. Sixty per cent of the sample was black, and the remainder Caucasian. All subjects were semi-skilled manual workers.

Thirty-five of the forty subjects were evaluated with a version of the NIMH Diagnostic Interview Schedule (DIS; Robins *et al*, 1981), modified for computerised self-administration. Two subjects had a history of major affective disorder (bipolar type), one had phobic disorder and panic attacks, and another had social phobia. Fourteen subjects met DSM–III (American Psychiatric Association, 1980) criteria for antisocial personality disorder, while twelve others had some symptoms of the disorder. One subject met the criteria for borderline personality disorder.

Based on DSM–III criteria, 14 subjects received a diagnosis of previous alcohol dependence and eight of alcohol abuse; 20 of opioid dependence (most commonly heroin); seven of barbiturate dependence and three of barbiturate abuse; ten of amphetamine dependence and two of amphetamine abuse. In addition, all subjects except two had used cocaine, 23 had used hallucinogens (from once

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to several times), 33 had used marijuana, 13 had used minor tranquillisers, nine had used phencyclidine, and 11 had used inhalants. The last reported use of each drug before recruitment was as follows: opioids within 2 weeks; barbiturates, 4 days–5 years; minor tranquillisers, 2 weeks–8 years; hallucinogens, 1 month–4 years; cocaine, 1 week–2 years; amphetamines, 1 month–6 years; and inhalants, 2–24 years.

There were five subjects who had no DSM–III diagnosis, but all of these had histories of alcohol and heroin use, two of barbiturate use and three of amphetamine use. In addition, all had used cocaine and marijuana, four had used minor tranquillisers, three had used hallucinogens, two had used phencyclidine, and four had used inhalants. Mean age (s.d.) of first use (in years) was as follows: alcohol, 14.3 (2.4); heroin, 18.4 (3.5); cocaine, 21 (5.4); barbiturates, 18.3 (3.6); and amphetamines, 17.5 (5.7). Mean (s.d.) duration of use (in years) was as follows: alcohol, 17.1 (4.9); heroin, 12.8 (6.7); cocaine, 10.2 (5.3); barbiturates 14.7 (6.6); and amphetamines, 12.2 (8.3).

At the time of the CT scan, none of the subjects was suffering from any known acute or chronic disease of the nervous system or other organ, and none reported a history of head injury leading to loss of consciousness. Some subjects reported minor head injuries which did not result in the loss of consciousness. The CT scan was performed 14.9 (9.7) days (mean (s.d.), range 6–50 days) after the last drink of ethanol, as reported at recruitment.

The forty males of the matched control group, aged 24–51 years, were randomly selected from data files of 100 screened normal male volunteer CT subjects of the Department of Psychiatry of Johns Hopkins University (Pearlson *et al*, 1985; Pearlson *et al*, 1989). The subjects selected were of normal intelligence, had no diagnosis of psychiatric or organic disorders at the time of testing, and had no histories of alcohol or drug abuse. They were matched for age and sex with the forty substance abusers. Of the normal controls, 85% were white. Half of the sample was made up of unskilled hospital workers; the other half was middle class.

Measures

Histories of drug use were obtained from all subjects using a structured clinical interview constructed on the basis of the Addiction Severity Index of McLellan *et al* (1980). Among the items of the clinical interview, self-reported peak drug use levels were used in correlational analyses. Such data have, in the past, been used in epidemiological studies, and have covaried with a variety of other potential markers of drug abuse (Kozlowski *et al*, 1984).

Some subjects expressed peak drug use in terms of monetary value, while others provided data in terms of weight of substance used or frequency of use. Because of this variability, we transformed the peak-use data into severity scores. Before building the severity scale, amounts of alcohol were standardised, equating 12 ounces (355 ml) of beer with 5 ounces (148 ml) of wine, 1.5 ounces (43 ml) of spirits and 13.5 g ethanol. Monetary values for heroin and cocaine were also standardised, equating $150 of street heroin with 1 g of substance (5% purity, Drug Enforcement Agency reports for the Baltimore area) and $100 of street cocaine to 1 g of the drug (50% purity). The data on consumption at peak use were transformed to scores between one and five as indicated in Table 1. For barbiturates and amphetamine, the amount at peak use was reported only in terms of frequency of use. Unlike data obtained on heroin and cocaine, the amount of alcohol consumed per day did not correlate highly with the amount consumed per session during the period of peak usage. Therefore, we maintained separate categories of peak use for alcohol. Scores were distributed for all drugs such that median usage was represented by a score of '3', with subjects being represented in each of the five levels of the scale.

Non-contrast CT scans were performed for five of the substance abusers with a GE 8800 CT scanner at the

Table 1
Substance use severity scores based upon consumption at time of peak use

Substance	Score				
	1	2	3	4	5
Alcohol					
Amount consumed per session (33)[1]	<15 g	15–50 g	51–100 g	101–200 g	>200 g
Amount consumed per day (33)	<15 g	15–30 g	31–60 g	61–150 g	>150 g
Frequency of consumption (7)	<weekly	weekly	3–6/week	daily	>daily
Heroin					
Amount consumed per day (30)	<25 mg	25–100 mg	101–400 mg	401 mg–1 g	>1 g
Frequency of consumption (10)	⩽weekly	2–3/week	4–6/week	daily	>daily
Barbiturate					
Frequency of consumption (14)	rarely	<weekly	weekly	2–6/week	daily
Amphetamine					
Frequency of consumption (24)	rarely	⩽weekly	2–6/week	daily	>daily
Cocaine					
Amount consumed per day (28)	<25 mg	25–100 mg	101–400 mg	401 mg–1 g	>1 g
Frequency of consumption (10)	rarely	⩽weekly	2–6/week	daily	>daily

1. Values in parentheses show the number of subjects who presented data as indicated. Total $n = 40$. The total of values in parentheses for alcohol exceeds 40 because 33 of the subjects reported alcohol consumption two ways.

Francis Scott Key Medical Center in Baltimore. For the other 35 subjects and the normal controls, scans were performed using a Siemens Somatom DR-3 CT scanner at The Johns Hopkins Hospital. Scan parameters for all forty studies were comparable (8 mm slice thickness, interslice interval of 8 mm).

Scans were evaluated by measuring the ventricle:brain ratio (VBR) (Synek *et al*, 1976) and third ventricle width (TVW) in mm, as described previously (Pearlson *et al*, 1985), using a computerised planimeter. Both measures were determined by tracing magnified drawings of the appropriate CT images onto transparent sheets using a radiological projector. The CT image selected for VBR measurement was the one in which the bodies of the lateral ventricles were at their maximum width. For TVW measurement, the image taken was the one in which the third ventricle was widest. Estimates of TVW obtained from substance abusers were multiplied by a scale factor of 0.5 to compensate for differences in the magnification of drug users' scans, compared with controls. Drawings were made twice by one rater (NGC), and the mean value was used. Cortical sulcal atrophy (CSA) was assessed as described previously (Largen *et al*, 1984). This analogue measure was taken from the CT cut two slices above the lateral ventricles at their maximum width. Four ratings were assigned: 1 = no atrophy, 2 = mild, 3 = moderate, 4 = severe. Sulcal width scores were distributed among subjects as follows: 11 subjects had a score of '1'; 28 subjects, '2'; and 1 subject, '3'. All measures were calculated by an independent and blind rater (GP).

Statistical analysis

Possible relationships between CT parameters and substance use severity scores were analysed using Pearson product–moment correlation. Because age can influence CT scan parameters (Pfefferbaum *et al*, 1986), we controlled for age through multiple regression procedures. One-way analyses of variance comparing drug users and matched normals (a 'repeated measures' factor because of the subject-by-subject age matching of the control group) for VBR and TVW were also performed. The alcohol-use severity scores obtained from those subjects who reported amount consumed per session ($n = 33$) plus those subjects who reported only frequency of consumption ($n = 7$) were pooled for analysis. The alcohol-use severity scores for the amount consumed per day, obtained from the same 33 subjects who reported amount of alcohol consumed per session, were used separately in Pearson product–moment correlations.

Results

The mean ages (s.d.) in years of substance abusers and controls were 32.4 (4.71) and 32.5 (5.67), respectively. Mean values of VBR (s.d.) in substance abusers and controls were 7.0 (1.80) and 6.5 (4.0), respectively. Mean values (s.d.) of TVW in substance abusers and controls were 6.0 (1.50) and 4.0 (1.50), respectively. For controls, age was not significantly correlated with VBR ($r = -0.099$, $P > 0.05$) or TVW ($r = 0.05$, $P > 0.05$). In the series of 100 normal control men (18–85 years old), there was a positive correlation between VBR and age (Pearlson *et al*, 1985). The subsample of 40 subjects we selected probably produced a negative correlation because of the presence of large VBR values in some of the younger subjects and a restriction of range for age. In this group, VBR was not correlated significantly with TVW ($r = -0.19$, $P > 0.05$). In contrast to the control group findings, age was positively correlated with VBR, but not with TVW in the substance abusers ($r = 0.34$ and $r = -0.010$, respectively). The correlation between VBR and TVW was statistically significant ($r = 0.31$, $P < 0.05$). Cortical sulcal width was significantly correlated with age of substance abusers ($r = 0.39$, $P < 0.05$). Intercorrelations between sulcal and ventricular measures did not yield any statistical significance. Analysis of variance comparing the drug users v. controls produced only a significant group effect ($F(1,38) = 25.4$, $P < 0.001$) for TVW, due to a larger mean in the drug-user group.

Table 2 presents correlations of age, VBR, TVW and sulcal width v. use severity scores for alcohol (amount consumed per session), heroin, cocaine, barbiturates and amphetamines in drug users, and the intercorrelations among severity scores for the abused substances. Age correlated negatively with the cocaine severity score. Assuming no effect of age, there were no statistically significant correlations between severity scores of the abused drugs (i.e. severity of usage of one drug was only minimally correlated with the usage of other drugs), except for the relationship between the use of amphetamine and cocaine ($r = 0.45$, $P < 0.05$). Cortical sulcal width significantly correlated with severity of cocaine use ($r = -0.34$, $P < 0.05$).

Without partialling out the effect of age, no statistically significant correlations were obtained between ventricular measures and estimated quantity of substances abused other than alcohol. Alcohol use, reported either as the amount consumed per session or as frequency of consumption (considering all 40 subjects), was significantly correlated with VBR ($r = 0.36$, $P < 0.05$) but not with TVW ($r = -0.047$, $P = 0.76$). However, the severity score for the amount of alcohol consumed per day was not significantly correlated with VBR ($r = 0.11$) and TVW ($r = 0.13$). When the seven subjects who expressed alcohol consumption only as frequency of use were removed from the analysis (remaining $n = 33$), the correlation of severity of alcohol use with VBR showed a trend toward statistical significance ($r = 0.30$, $P = 0.087$). It is notable that for one subject, two CT scans were performed three years apart. At the time of the first scan, the subject was not using alcohol, and his TVW was 4 mm. Three years later, he was using alcohol, and TVW was measured as 6 mm, showing a 36% increase.

Severity of alcohol use still tended to be a high predictor of VBR after controlling for age through multiple regression analysis ($\Delta R^2 = 0.08$, $F(2,37) = 3.81$, $P = 0.058$). There were no significant interactions of age and alcohol use severity on VBR ($F(3,36) = 0.39$, $P = 0.54$) or TVW ($F(3,36) = 1.41$, $P = 0.24$). Also, age of first alcohol use and amount of alcohol consumed per session did not have a significant interactive effect on VBR ($\Delta R^2 = 0.01$, $F(3,36) = 0.05$, $P = 0.83$). As age of first alcohol use correlated negatively with severity of alcohol use ($r = -0.07$) and severity of alcohol use correlated positively with VBR (Table 2), age of first alcohol use had a suppressor effect on the influence of severity of alcohol use on VBR. After

Table 2

Correlation of age and CT parameters with substance abuse severity scores and intercorrelations between abused substances

Severity scores	Alcohol[1]	Heroin	Cocaine	Barbiturates	Amphetamine
Age at CT scan	0.236	0.102	−0.301	0.390*	0.077
Ventricle:brain ratio	0.359*	−0.174	0.112	0.273	0.096
Third ventricle width	−0.047	−0.028	0.183	0.199	0.028
Sulcal width	0.146	−0.165	−0.340*	0.113	0.089
Alcohol	1.00	0.197	−0.097	0.182	0.250
Heroin	0.197	1.00	0.082	0.225	−0.062
Cocaine	−0.037	−0.082	1.00	−0.032	0.450*
Barbiturates	0.132	0.225	−0.032	1.00	0.311
Amphetamine	0.250	0.062	0.450*	0.311	1.00

1. Severity use scores correlated here are for subjects who reported amount of alcohol consumed per session and those who reported only frequency of consumption (total $n = 40$).

*Significant by Pearson product-moment correlation; $P < 0.05$.

partialling out the effect of age of first alcohol use through a multiple regression analysis, severity of alcohol use was still a significant predictor of VBR enlargement ($\Delta R^2 = 0.13$, $F(2,37) = 5.47$, $P < 0.05$). Furthermore, over and above age at CT scan and age of first alcohol use, severity of alcohol use still accounted for an additional 8% of the variance of the VBR. As major affective disorders have been associated with brain structural change (Pearlson *et al*, 1985), we also performed the correlational analysis excluding those two subjects who received a DIS diagnosis of bipolar disorder. Alcohol use reported as amount consumed per session was still significantly correlated with VBR ($r = 0.48$, $P < 0.05$), indicating that the presence of a history of bipolar disorder did not confound our results. Degree of cocaine use did not remain a significant predictor of sulcal width after controlling for age through multiple regression analysis ($\Delta R^2 = 0.055$, $F(2,35) = 2.43$, $P = 0.12$).

Discussion

Radiological abnormalities compatible with the presence of cerebral atrophy are frequently reported in CT scans of alcoholics (Cala & Mastaglia, 1980; Ishii, 1983; Ron, 1983). The reported prevalence (Ishii, 1983) of these abnormalities has varied with the diversity of populations studied, the duration of abstinence prior to scanning, and the definitions of atrophy (Artmann *et al*, 1981; Carlen *et al*, 1986). Although correlations between CT findings and duration of abstinence from alcohol before CT scan have been observed (Lishman *et al*, 1980; Ron *et al*, 1980), only Pfefferbaum *et al* (1988) demonstrated a dose–effect relationship between ethanol exposure and brain morphology after controlling for age.

It is difficult to draw causal inferences about the possible effect of a particular drug on brain structure when human polydrug abusers are studied. Although they should be treated cautiously owing to the limitations of our study, the present findings support the hypothesis that quantity of alcohol consumed is related to brain damage. We show that an index of lateral ventricular enlargement, previously found to be much less prevalent in younger than older alcoholics (Hill & Mikhael, 1979; Lee *et al*, 1979), correlates with the severity of alcohol use. Notably, we obtained these correlations using a sample of relatively young drug abusers. Furthermore, the results demonstrate that the amount consumed per session ('bingeing') might be a better predictor of cerebral atrophy than alcohol consumption per day.

Age was an important factor in drug use and in the relationship with VBR. The significant correlations between age and severity scores for the use of cocaine suggested heavier use of cocaine among the younger subjects in the sample. The absence of the interactive effect of age of first alcohol use on the relationship between the alcohol use severity score and VBR is not consistent with the view that the brain of a younger subject is more sensitive to dose-dependent effects of alcohol-induced atrophy (Ishii, 1983). Ron (1983) reported that duration of drinking history was unrelated to radiological abnormalities. Our data seem to confirm his finding. No relationship was noted between age of first alcohol use and VBR or TVW. Furthermore, Ron (1983) pointed out that subjects with later onset and shorter drinking histories could become as severely affected as those of the same age who started drinking earlier, suggesting that advancing age rendered the brain more vulnerable to the toxic effects of alcohol. Our data do not confirm this last inference. In contrast, our data stress that over and above age at CT scan and age of first alcohol use, the severity of alcohol use might be, *per se*, the decisive factor in producing brain damage.

Third ventricular measures, an effective index of cerebral atrophy (Ishii, 1983), showed statistically significant group differences, comparing substance abusers with controls using an analysis of variance, but no significant correlations were obtained between

TVW and substance-abuse severity. The lack of a significant correlation between TVW and the alcohol-use severity score suggests that the magnitude of alcohol use in our sample was not sufficient to alter brain structures surrounding the third ventricle. The absence of a significant correlation between severity of alcohol use and sulcal width, as in the case of the third ventricular measure, may indicate that the amount of alcohol use in our sample was not sufficient to alter cortical structures. It is, in fact, notable that the positive findings on this correlation reported in the literature were obtained in a sample of older and heavier alcohol users (Ron, 1983; Pfefferbaum *et al*, 1988). Nonetheless, age and sulcal width were significantly correlated in substance abusers. This finding is in concert with the suggestion that sulcal enlargement may precede long-term alcohol consumption in young polydrug abusers (Pfefferbaum *et al*, 1988).

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Psychosis in Migrants from the Indian Subcontinent and English-Born Controls

A Preliminary Study on the Use of Psychiatric Services

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A cohort of first-generation Asian immigrants who received a diagnosis of a functional psychosis at the Bethlem Royal and Maudsley Hospitals were compared with an English-born control group. The Asians were found to have spent a lower total percentage of time in the two hospitals, had fewer in-patient admissions per year, and had a shorter average duration of stay in hospital than the matched controls.

The International Pilot Study of Schizophrenia (IPSS) showed that the two-year outcome of schizophrenia was better in 'developing' countries such as India than in 'developed' nations such as the United Kingdom (World Health Organization, 1979). Similar findings at five-year follow-up have recently been reported (Sartorius *et al*, 1987), and the difference was also demonstrated in the Study on the Determinants of Outcome of Severe Mental Disorders (Sartorius *et al*, 1986) which was epidemiologically based. In line with these results, a recent multi-centre follow-up study from India showed that a high proportion of cases that met initial diagnostic criteria for schizophrenia had a good two-year outcome (Verghese *et al*, 1989).

There has also been a growing interest in the mental health of subjects who have emigrated from the Third World to the United Kingdom (Rack, 1982*a*,*b*; Cox, 1986; London, 1986; Rathwell & Phillips, 1986; Cochrane & Bal, 1987, 1989; Fernando, 1988; Leff, 1988; Cruickshank & Beevers, 1989; Littlewood & Lipsedge, 1989). One of the most consistent findings has been an increase in the rate of diagnosis of schizophrenia among these immigrant groups, including those from the Indian subcontinent (e.g. Cochrane, 1977; Carpenter & Brockington, 1980; Dean *et al*, 1981; Littlewood & Lipsedge, 1981; Shaikh, 1985; Cochrane & Bal, 1987, 1989).

However, studies on immigrants may be particularly subject to biases and artefacts, and this applies to longitudinal as well as cross-sectional investigations. For example, Cochrane & Bal (1987) found very low readmission rates in some Asian subgroups, but they argue that this could be because some of the patients had returned to their country of origin during follow-up. Shaikh (1985) studied Asians who were admitted to psychiatric hospitals in Leicestershire in 1978, and found that they received a higher proportion of schizophrenic diagnoses than matched controls. When all diagnoses were combined there was no difference in the total length of stay of the two groups over three-year follow-up, but unfortunately out-patients were not taken into account.

The present study reports preliminary findings from a follow-up study of Asian immigrants who made contact with the Bethlem Royal and Maudsley Hospitals in London either as in-patients or as out-patients, and who were given a diagnosis of a non-organic adult psychosis.

Method

Two groups of patients were compared. The first consisted of a consecutive series of 86 first-generation Asian immigrants born on the Indian subcontinent (India (57), Pakistan (13), Bangladesh (6) and Sri Lanka (10)), all of whom were seen at the Bethlem Royal and Maudsley Hospitals ('Joint Hospital') between 1969 and 1983, inclusive, and have been given a diagnosis of a functional adult psychosis (ICD-9 (World Health Organization, 1978): 295, 296, 297 or 298). The second group consisted of an equal number of patients who were born in England (a small number of whom may have been second-generation immigrants), matched with the Asians for date of admission and age, and who had also received a diagnosis of a functional adult psychosis.

Both groups were initially ascertained using the computerised records of the Joint Hospital as a sampling frame. The corresponding case notes were then retrieved, and any patients with a concurrent diagnosis of organic cerebral disease or mental retardation, and any patients who were already known to the author, were excluded; this applied to very few patients. Subjects excluded from the matched group were replaced. After exclusion there were 86 patients in each group.

Details of subsequent admissions to the Joint Hospital were obtained from the 'front sheets' of the case notes.

Results

Males comprised 67% of the Asians, but only 43% of the controls (standardised normal deviate = 2.79, $P < 0.01$, two-tailed, using McNemar's test). A significantly higher proportion of the Asians were married or cohabiting (as opposed to single, widowed, separated or divorced: standardised normal deviate for those patients for whom data were available = 3.43, $P < 0.001$, two-tailed, using McNemar's test). There was no significant difference between the two groups on employment status at the time of initial contact.

Follow-up for each patient was divided into three time periods: two years from the time of initial contact with the Joint Hospital, five years from initial contact, and total time between initial contact and the date on which the case notes were scrutinised in 1987/88. For each of these time periods, three indices were calculated:

(a) the total percentage of the time spent as an in-patient at the Joint Hospital
(b) the total number of separate in-patient admissions per year
(c) the average duration of each in-patient stay.

Table 1 shows the mean values for each index for each of the three time periods. Inspection of the data for the proportion of the total follow-up period spent in the Joint Hospital revealed that the distribution of scores was markedly asymmetric in both groups. However, there were interesting differences. In the Asian group, approximately two-thirds of the subjects spent less than 1% of follow-up in the hospital, whereas this applied to only about half of the controls. However, the proportion of the patients who were never admitted to the Joint Hospital did not differ significantly between the two groups, although there was a trend for this proportion to be higher in the Asian group (standardised normal deviate = 1.79, $P < 0.10$, two-tailed, using McNemar's test). As the data were non-parametric in form, Wilcoxon rank-sum tests were employed to compare the two groups on corresponding measures. In each case the Asians had significantly lower scores for use of in-patient services. The three time periods are not wholly independent of one another, and the same applies to the three indices of service utilisation. However, the fact that all nine comparisons were significant suggests that the results were not simply due to type I error.

Table 1
Mean percentage of time as an in-patient, mean number of in-patient admissions per year and average duration of each in-patient stay

	Time since initial contact with joint hospital		
	2 years	5 years	Total
Percentage of time as an in-patient			
Asians	5%*	2%**	2%*
Matched controls	10%*	5%**	3%*
Number of in-patient admissions			
Asians	0.27*	0.13*	0.08*
Matched controls	0.41*	0.20*	0.11*
Average time of in-patient stay · days			
Asians	30*	29**	32*
Matched controls	54*	59**	59*

Differences between Asians and matched controls
*significant at 5% level using Wilcoxon's test.
**significant at 1% level using Wilcoxon's test.
All values are two-tailed.

Significantly fewer Asians had had a previous hospital admission for a psychiatric disorder (standardised normal deviate = 2.79, $P < 0.01$, two-tailed, using McNemar's test) To allow for the possible effect of this, the mean values for the percentage of total follow-up spent as an in-patient at the Joint Hospital were recalculated for the patients who were recorded as having no history of a previous psychiatric hospitalisation. The values were unchanged compared to those shown in Table 1. Enquiries made at the time the notes were scrutinised showed that a similar proportion of the patients in each group were still registered with the same general practice as at the time of initial contact with the hospital.

Discussion

For each of the three time periods following initial contact with the Joint Hospital, the Asian group had lower scores on percentage of time spent as an in-patient at the Hospital, total number of separate in-patient admissions per year, and the average duration of each in-patient stay. There are a number of possible explanations for this difference, and I will briefly consider each in turn.

Bias

It is possible that the Asians were more mobile than the controls and that they were admitted to hospitals in other catchment areas or even other countries. However, a similar proportion of the patients in the two groups had remained registered with the same general practice between the time of initial contact and the time the case notes were scrutinised. The inclusion criteria for the present study were based on hospital diagnoses recorded in the case notes' 'front sheet' and the hospital's computerised records. Some of these diagnoses may have been incorrect, the most likely mistake perhaps being the misdiagnosis of schizophrenia as a non-schizophrenic (e.g. affective) psychosis or vice versa (it is hoped to examine this issue in a separate analysis). However, the diagnostic categories were combined before the service utilisation indices were calculated.

Social and cultural differences

There are considerable cultural differences between Asian immigrant and indigenous, English-born patients, and these may to some extent reflect patterns in their country of origin. Sethi & Manchanda (1980) have pointed out that in India, admission to a psychiatric hospital is heavily stigmatised and therefore likely to be avoided by the patient's family as far as possible. Furthermore, some subgroups may have retained their usual extended social networks (see Cochrane & Bal, 1989) and this may make it feasible in some cases to avoid or shorten in-patient stay. The fact that a higher proportion of the Asians were living with a partner at the time of initial contact could be an effect of differences in clinical profile between the two groups, but it could also be a determinant of such differences, including those found in the pattern of subsequent admissions. The higher proportion of males among the Asians is also noteworthy, although it may simply reflect the difference in the distribution by gender of Asian immigrants and English-born subjects in the general UK population (see Cochrane, 1977; Carpenter & Brockington, 1980).

Differences in the severity and the outcome of the disorder

The lower overall index of in-patient stay among the immigrants was related to the fact that during follow-up the Asians had significantly fewer admissions per year, and a significantly lower average duration of stay. These facts suggest that the Asians may indeed have had a better outcome than the controls: a finding similar to that obtained in cross-national studies of schizophrenia (although the present study included all patients diagnosed as having a non-organic psychosis, not just those diagnosed as schizophrenic). However, the factors that predict admission (e.g. Zohar *et al*, 1987) or readmission (e.g. Pokorny *et al*, 1983) of a patient are very complex, and the same applies to the length of time a patient stays in hospital (e.g. Lenz *et al*, 1986). McPherson (1984) has pointed out that little is in fact known at present about the relationship of these variables to actual outcome, but Henderson *et al* (1989) have argued, nevertheless, that data on readmissions may be used as one measure of outcome and also as indicators of service 'performance'.

Conclusion

The authors of the International Pilot Study of Schizophrenia point out that differences between cultural groups may be due to at least four types of variables: biasing factors, sociocultural factors, treatment factors and constitutional factors. While the possibility of bias cannot be excluded entirely in the present investigation, the differences between Asian and control psychotic patients could be due to an interaction between the characteristics of the service and the sociocultural features of the different ethnic groups. However, there may also be genuine differences in outcome which are related in part to constitutional factors. This possibility merits further study.

Whatever the cause of the differences in service utilisation, one thing is clear: if confirmed in other settings they would have important implications for service planning and provision. A recent working party of the Royal College of Psychiatrists (1988) has emphasised the role of planning in ensuring that a service meets the needs of its local community. The present findings suggest that the ethnic and cultural composition of that community may need to be taken into account in any such considerations.

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Changes in the Positive and Negative Symptoms of Schizophrenic In-patients in China

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Positive and negative symptoms at admission and discharge of 401 unselected schizophrenic patients from four psychiatric hospitals around China were studied. On admission, 58% of patients had prominent negative symptoms and the overall severity of negative symptoms was similar to that of positive symptoms; at discharge, negative symptoms were more prevalent and more severe. The severity of negative symptoms was not significantly correlated with duration of illness or with dosage of medication; 48% of first-episode, drug-naive patients had prominent negative symptoms on admission. Negative symptoms responded to standard neuroleptic treatment, but the improvement was less marked than that in positive symptoms (47% v. 80%). The proportion of patients classified as positive type, negative type, and mixed type schizophrenia altered dramatically with treatment. These findings highlight the importance of negative symptoms in the assessment and treatment of both acute and chronic schizophrenia.

The original definitions of schizophrenia by Bleuler (1911) and Kraepelin (1913) consider deficit symptoms (i.e. negative symptoms) such as flat affect, poverty of thinking, and avolition to be the fundamental characteristics of the disorder, and productive symptoms (i.e. positive symptoms) such as hallucinations and delusions, secondary phenomena. But negative symptoms are difficult to define and recognise because the normal range of affective expression, amount of thought, motivation, etc. is quite broad and is strongly influenced by cultural and intrapersonal factors. Positive symptoms, on the other hand, are relatively easy to define and recognise, and their presence almost always indicates serious psychopathology. Thus, to maximise diagnostic reliability, recent criteria for schizophrenia consider hallucinations and delusions to be core symptoms of the disorder and either de-emphasise or totally disregard deficit symptoms. There are two problems with this diagnostic approach: (a) improved reliability does not guarantee good validity; and (b) treatment outcome for schizophrenia is primarily defined in terms of changes in positive symptoms – relatively little effort is expended to develop treatment methods that address negative symptoms.

A major article by Strauss *et al* (1974) rekindled interest in the distinction between positive and negative symptoms. In 1980, Crow used these concepts as the basis for his theory of two distinct types of schizophrenia: Type I (positive symptom type) caused by neurochemical changes, and Type II (negative symptom type) caused by structural changes. In the last decade, hundreds of articles about various aspects of the positive–negative dichotomy have appeared. The results of these studies are often contradictory, but most authors (Crow, 1985) now believe that the positive and negative symptoms seen in schizophrenia either reflect distinct disease processes or different syndrome patterns of the same disease process.

Clearly, the negative symptoms emphasised by Kraepelin and Bleuler should play a more prominent role in future diagnostic criteria for schizophrenia. But we must first answer remaining questions about the epidemiology of negative symptoms. What is the relative importance of positive and negative symptoms in the clinical presentation of schizophrenia? Are negative symptoms confined to chronically ill patients in residual phases of the illness, or are they important during other phases of the illness? Do negative symptoms go through exacerbations and remissions, or are they fixed characteristics that are unresponsive to treatment?

The current report addresses these questions via the study of a large, representative sample of Chinese schizophrenic in-patients. The presence and severity of positive and negative symptoms on admission and discharge from hospital were assessed using revised versions of Andreasen's Scale for the Assessment of Positive Symptoms (SAPS) (1984*a*) and Scale for the Assessment of Negative Symptoms (SANS) (1984*b*).

Method

SAPS and SANS were substantially revised to make them more suitable for use with Chinese subjects (Phillips *et al*, 1990). Five new items were added: for example, the item "Inadequate planning for the future" was added because Chinese clinicians felt that this was an important manifestation of avolition and apathy that was not assessed by SANS. Several definitions of symptoms were changed to make them more consistent with social conditions in China: for example, the revised SANS item "Impersistence at work or school" emphasises patients' difficulty 'adapting' to work rather than their difficulty 'seeking or maintaining employment', because once a person in China has a job, he/she usually has it for life. The original six-point scoring scheme was changed to a five-point scheme (0 = not present, 1 = mild, 2 = moderate, 3 = marked, 4 = severe) to improve inter-rater reliability. The resultant Chinese versions of the scales (SAPS-CV, SANS-CV) retain the overall structure of the originals: SAPS-CV has 37 items divided into four symptom groups (subscales): Hallucination, Delusions, Bizarre behaviour, and Formal thought disorder; SANS-CV has 25 items divided into five symptom groups: Affective flattening, Alogia (i.e. poverty of thought), Avolition/apathy, Anhedonia/asociality, and Attentional impairment. Most items assess the presence and severity of a specific symptom; the final item in each of the nine subscales is a global rating for the symptom group. The reliability and validity of these revised scales were extensively evaluated (Phillips *et al*, 1990) and found to be satisfactory: intraclass correlation coefficients (Zar, 1984) for the SAPS-CV and SANS-CV total scores of 72 patients concurrently evaluated (but independently coded) by two or more of the ten psychiatrist-coders participating in this study were 0.949 and 0.928, respectively.

From 15 July to 30 November 1988, a random selection of patients newly admitted to the four collaborating psychiatric hospitals who met DSM-III-R criteria for schizophrenia (American Psychiatric Association, 1987) were enrolled in the study. SAPS-CV and SANS-CV were administered as soon after admission as possible (usually within three days) and then readministered by a different coder before discharge or, if the patient was still in hospital, at the time of termination of data-collection (31 January 1989). Coding was based solely on information obtained during the clinical interview about the patient's condition in the week prior to evaluation. All patients received standard in-patient care; after completing the second evaluation the patient's chart and treating clinician were consulted to obtain detailed information about the treatment received and to assess the overall severity of extrapyramidal side-effects at the time of discharge (a four-point scale was used: 0 = none, 1 = mild, 2 = moderate, 3 = severe).

Several dimensional indices were computed:

(a) total scores – total score for all items in each scale
(b) composite scores – total score for the four global rating items in SAPS-CV and for the five global rating items in SANS-CV
(c) percentage composite scores – the SAPS-CV composite score divided by 16 and the SANS-CV composite score divided by 20
(d) subscale scores – total score for all items in each of the subscales
(e) adjusted percentage improvement scores – the decrease in discharge v. admission scores divided by the mean score for the sample at admission.

Following Andreasen & Olsen's method (1982), the number and type of 'prominent' symptom groups were used to topologically classify patients into different schizophrenic types. A symptom group was considered prominent if the global-rating item for the corresponding subscale was coded '3' ('marked') or '4' ('severe'). Patients with one or more prominent positive symptoms and no prominent negative symptoms were classed 'positive type' schizophrenia; patients with two or more prominent negative symptoms and no prominent positive symptoms were classed 'negative type' schizophrenia; all other patients were classed 'mixed type' schizophrenia. We further divided mixed type into three subtypes: patients without any prominent symptoms were classed 'no prominent symptoms subtype'; patients with a single prominent negative symptom and no prominent positive symptoms were classed 'single negative symptoms subtype'; and patients with both prominent positive and negative symptoms were classed 'positive and negative subtype'.

The Wilcoxon paired-sample test was used to assess differences in dimensional indices before and after treatment and differences between SANS-CV and SAPS-CV percentage composite scores and adjusted percentage improvement scores; Mann–Whitney and Kruskal–Wallis tests were used to compare dimensional measures between different groups of patients; the McNemar test was used to compare the proportion of patients with prominent positive symptoms to the proportion with prominent negative symptoms; the χ^2 test was used to compare the proportions of patients with prominent negative symptoms in different groups of patients; and Spearman rank correlation coefficients were used to correlate scale scores with other dimensional measures. The personal computer version of the Statistical Package for the Social Sciences (Norusis, 1988*a*,*b*) was used for all computations. All reported *P* values are for two-tailed tests.

Results

In total, 466 patients were enrolled in the study: 19 (4%) were dropped because they were either too seriously disturbed or too uncooperative to complete SAPS-CV and SANS-CV within one week of admission, and a further 46 (9.9%) patients left the hospital before the discharge evaluation could be completed. There were no significant differences in age, sex, or duration of illness of the completers and non-completers. Complete data were obtained for 401 patients, of whom 227 (56.6%) were male. Mean age of the sample was 31.0 years (s.d. 10.8, range 14.4–69.8); their mean duration of illness was 7.1 years (s.d. 6.8, range 0.5–33.9); their mean number of hospital admissions was 3.0 (s.d. 2.8, range 1–25); 137 (34.2%) had no prior hospital admissions; 143 (35.7%) had not used neuroleptics during the year up to admission; and 94 (23.4%) had never used neuroleptic medication.

The mean interval between the admission and discharge evaluations was 66.7 days (s.d. 24.9; range 7–122). All 401 patients received neuroleptic medication while in-patients. The most commonly used oral neuroleptics were chlorpromazine (242 (60.1%) patients), clozapine (141 (35.2%) patients), and perphenazine (116 (28.9%) patients). Short courses of intramuscular neuroleptics were given to 102 (25.4%) patients. Patients receiving long-acting neuroleptics numbered 17 (4.2%). Of the 401 patients, 193 (48.1%) used two or more different neuroleptics during admission. At discharge the mean chlorpromazine-equivalent oral dosage (as computed by Davis, 1976) was 518 mg/day (s.d. 396; range 0–3000). Artane – the main anti-Parkinsonian agent used in China – was given to 246 (61.3%) patients at some point during admission. Electroconvulsive therapy was administered to 67 (16.7%) patients; the mean number of treatments was 6.6 (s.d. 3.0; range 1–13). Adjunctive treatment with traditional Chinese medicine was given to 74 (18.5%) patients; there was no significant difference in the dosage of neuroleptics between those who did and did not take Chinese medicines.

Changes in positive and negative symptoms with treatment

Table 1 presents the admission and discharge SAPS-CV and SANS-CV results. There was a highly significant decrease in the severity of all types of symptoms with standard treatment. The mean improvement in positive symptoms was much greater than that for negative symptoms (80% v. 47%, Wilcoxon paired test, $Z=7.9$, $P<0.001$); at discharge most patients' positive symptoms had resolved but many patients continued to have residual negative symptoms. Moreover, 60 patients (15%) had an increase in severity of negative symptoms during in-patient treatment; 28 (7.0%) patients developed one or more new prominent negative symptoms. There was no significant difference in the dosage of neuroleptic medication or the severity of extrapyramidal side-effects between patients who did and did not develop new negative symptoms during admission.

Patients treated with multiple neuroleptics had a similar treatment outcome to those treated with a single neuroleptic: at discharge mean SAPS-CV total scores were 3.7 and 3.6, respectively (Mann–Whitney test, $Z=0.43$, $P=0.67$), and mean SANS-CV total scores were 17.2 and 14.8 ($Z=1.72$, $P=0.09$). Moreover, there was no significant differential effect on positive and negative symptoms between the three most commonly used neuroleptics (at usual clinical dosages): at discharge the 78 patients who only used chlorpromazine, 46 patients who only used clozapine, and 44 patients who only used perphenazine had SAPS-CV scores of 3.7, 3.9, and 3.3 (Kruskal–Wallis $H=3.69$, $P=0.16$) and SANS-CV scores of 15.1, 18.1, and 12.6 ($H=5.16$, $P=0.08$). The concomitant use of traditional Chinese medications with neuroleptics was not superior to the use of neuroleptics alone: at discharge SAPS-CV scores were 3.3 and 3.7, respectively (Mann–Whitney test, $Z=0.97$, $P=0.33$), and SANS-CV scores were 16.1 and 15.9 ($Z=1.38$, $P=0.17$).

Percentage composite score can be used to compare overall severity of positive and negative symptoms because it adjusts for the different number of subscales in the two scales. Using this parameter, mean overall severity of negative symptoms was greater than that of positive symptoms both at admission (39.5% v. 35.6%, Wilcoxon paired sample test $Z=1.959$, $P=0.501$) and at discharge (20.2% v. 7.8%, $Z=12.1$, $P<0.001$). There was, however,

Table 1
Admission and discharge results for SAPS-CV and SANS-CV ($n=401$)

	Number of items	Admission results			Discharge results			Mean adjusted improvement score	Wilcoxon test[2] Z-value
		Symptom group prominent[1] *n*	%	Total score mean (s.d.)	Symptom group prominent[1] *n*	%	Total score mean (s.d.)		
SAPS-CV									
Overall	37	–	–	18.2 (10.1)	–	–	3.7 (5.1)	80%	16.9
Composite	4	266[3]	66.3	5.7 (2.8)	31[3]	7.7	1.2 (1.8)	79%	16.6
Hallucinations	8	124	30.9	4.6 (4.9)	10	2.5	0.6 (1.8)	87%	13.2
Delusions	16	208	51.9	8.2 (5.3)	25	6.2	2.2 (3.1)	73%	15.7
Bizarre behaviour	6	49	12.2	3.1 (3.1)	2	0.5	0.4 (1.0)	87%	13.2
Formal thought disorder	8	35	8.7	2.4 (3.6)	4	1.0	0.5 (1.6)	79%	10.6
SANS-CV									
Overall	25	–	–	28.7 (18.1)	–	–	15.2 (14.0)	47%	13.6
Composite	5	234[3]	58.4	7.9 (4.1)	60[3]	15.0	4.0 (3.4)	49%	14.5
Affective flattening	6	91	22.7	7.3 (5.9)	28	7.0	3.9 (4.5)	47%	10.8
Alogia	6	71	17.7	4.1 (4.5)	14	3.5	1.8 (2.8)	56%	10.0
Avolition/apathy	5	169	42.1	6.2 (3.3)	27	6.7	3.2 (2.9)	48%	13.4
Anhedonia/asociality	5	117	29.2	7.8 (5.3)	41	10.2	4.8 (4.6)	38%	10.5
Attentional impairment	3	26	6.5	3.3 (3.0)	4	1.0	1.4 (2.1)	58%	12.0

1. A symptom group is considered 'prominent' if the global rating item for the corresponding subscale is scored '3' ('marked') or '4' ('severe').
2. Wilcoxon paired-sample test comparing admission and discharge scores; all $P<0.001$
3. Number of patients for whom one or more symptom group(s) is (are) prominent.

a higher proportion of patients with prominent positive symptoms on admission than with prominent negative symptoms (66.3% v. 58.4%, McNemar test $\chi^2=4.18$, $P=0.04$). At discharge more patients had prominent negative symptoms than prominent positive symptoms (15.0% v. 7.7%; $\chi^2=9.7$, $P=0.002$).

Relationship of negative symptoms to drug history and duration of illness

The proportion of patients with prominent negative symptoms on admission was lower in drug-naive patients than in patients who had previous experience with neuroleptics (47.9% v. 61.6%, $\chi^2=5.0$, $P=0.03$), lower in patients who had been drug-free in the year before admission than in patients who were exposed to medication in the previous year (46.9% v. 64.7%, $\chi^2=11.2$, $P<0.001$), and slightly lower in first-admission patients than in patients with multiple admissions (54.0% v. 60.6%, $\chi^2=1.35$, $P=0.24$). The overall severity of negative symptoms on admission did not differ significantly between groups: mean SANS-CV total scores were 31.0 v. 31.1 for drug-naive v. drug-experienced patients (Mann–Whitney test $Z=0.27$, $P=0.78$); 30.7 v. 31.0 for drug-free v. drug-exposed patients ($Z=0.09$, $P=0.93$); and 32.2 v. 30.4 for first-admission v. multiple-admission patients ($Z=1.18$, $P=0.24$). At discharge these different groups of patients did not have significant differences in the proportion of patients with prominent negative symptoms or in the overall severity of negative symptoms. The severity of negative symptoms on admission and discharge was not significantly correlated to neuroleptic dosage level ($r=0.0935$ and 0.0403, respectively) or duration of illness ($r=-0.0831$ and -0.0651, respectively), and the severity of negative symptoms at discharge was not significantly correlated with the severity of extrapyramidal side-effects ($r=0.0033$) (for all cases $P>0.05$).

Distribution of positive, negative and mixed type schizophrenia

Table 2 presents the classification of patients into schizophrenic types at admission and at discharge. A large proportion of patients fall into the 'mixed type' group. As patients' symptoms resolve with treatment (or over time) the schizophrenic type – as defined by the scales – changes. For the vast majority of patients the change was from 'positive type', 'negative type', or 'positive and negative subtype' to 'no prominent symptoms subtype'. There was little cross-over between pure positive and pure negative types: only three (2.3%) of the 131 patients with positive type on admission had negative type at discharge; none of the negative type patients converted to positive type.

Table 2
Classification[1] of 401 Chinese schizophrenic patients according to admission and discharge SAPS-CV and SANS-CV results

	Admission		Discharge	
	n	%	*n*	%
Positive type schizophrenia	131	32.7	26	6.5
Negative type schizophrenia	58	14.5	25	6.2
Mixed type schizophrenia	212	52.9	350	87 3
Mixed type includes:				
no prominent symptoms subtype	36	9.0	315	78.6
single negative symptom subtype	41	10.2	30	7.5
positive and negative subtype	135	33.7	5	1 2

[1] See text for description of different types.

Discussion

This study used revised instruments of proven reliability and validity to assess both the positive and negative symptoms of an unselected sample of acute schizophrenic patients who were admitted to four large psychiatric hospitals in different parts of China. We believe that the sample is representative of DSM–III–R schizophrenic patients admitted to Chinese psychiatric hospitals, that the treatment received is representative of standard in-patient treatment provided in China, and, thus, that the results accurately depict the positive and negative symptoms of Chinese schizophrenic patients at admission and discharge from hospital.

There are three major findings:

(a) negative symptoms are important in both acute and chronic phases of schizophrenia
(b) negative symptoms partially respond to drug treatment
(c) the schizophrenic type is mutable.

Similar results from Western studies indicate that these findings reflect intrinsic characteristics of schizophrenia across cultures; they are not due to culture-specific manifestations of schizophrenia in Chinese patients or to the different treatment methods used in China. The results are, however, specific to the type of patient and the type of instrument used in this study; studies that use different types of patients (e.g. out-patients, long-term in-patients, or patients whose diagnosis is based on a different definition of schizophrenia) and studies that use instruments based on different conceptualisations of positive and negative symptoms may have different results.

These data help to examine the question of the relative importance of negative and positive symptoms in the clinical presentation of schizophrenic patients. We found that prominent negative symptoms are commonly seen in acutely admitted schizophrenic patients, and that the overall severity of negative symptoms on admission is similar to that of positive symptoms; at discharge, negative symptoms are more prevalent and more severe than positive symptoms. We also found that the severity of negative symptoms on admission and discharge was not positively correlated with duration of illness and that 54% (74 of 137) of first-episode patients had prominent negative symptoms on admission; negative symptoms are thus an important part of the clinical presentation of acute episodes in both the acute (0–2 years) and chronic (over 2 years) stages of schizophrenia. Western reports confirm the importance of negative symptoms in acutely admitted patients (Andreasen, 1987) and the non-significant correlation between severity of negative symptoms and duration of illness (Kay *et al*, 1987). The next important research question is whether or not there are phenomenological, aetiological, and prognostic differences between the negative symptoms manifested during acute exacerbations of illness and those manifested during residual phases of illness (Pogue-Geile, 1989).

This study did not undertake a formal evaluation of drug efficacy, but it did prospectively and blindly evaluate changes in symptoms associated with different treatments. The similar partial efficacy of chlorpromazine, clozapine, and perphenazine (as used clinically) suggests that negative symptoms include a drug-sensitive component and a drug-insensitive component. Reviews on the use of standard neuroleptics in the West confirm this finding (Goldberg, 1985; Meltzer *et al*, 1986) and contradict the clinical impression that negative symptoms are unchangeable. Compared to positive symptoms, however, negative symptoms are only partially resolved by hospital treatment; a large number of patients have residual negative symptoms at discharge (Kane & Mayherhoff, 1989).

'Primary' v. 'secondary' negative symptoms

A fundamental theoretical issue is the differentiation of negative symptoms that are part of the schizophrenic process itself from those that are secondary to the use of medication, post-psychotic depression, or the 'hospitalisation syndrome' (Sommers, 1985; Johnstone, 1989). Our patients had prominent negative symptoms at admission; it is unlikely that these were caused by post-psychotic depression or hospital admission. Our patients' negative symptoms may be related to medication usage; but the presence of prominent negative symptoms in 48% (45 of 94) of drug-naive patients and the low correlation of negative symptoms with chlorpromazine-equivalent drug dosage and with extrapyramidal side-effects does not support this hypothesis. We conclude that the majority of negative symptoms seen in these patients were, indeed, part of their schizophrenic illness – i.e. 'primary' symptoms. On the other hand, drug-free patients were less likely to have prominent negative symptoms on admission than patients who had used drugs in the previous year and 7% (28 of 401) of patients developed new prominent negative symptoms during their stay in hospital; some negative symptoms may be secondary to medication or to the effects of hospital admission.

Topological v. dimensional use of the scale results

Our analysis highlights problems in using the scales to determine topological groups. A large proportion of patients are classed as 'mixed type' schizophrenia, and thus their data cannot be used when comparing the characteristics of patients with the pure positive and pure negative syndromes. In our study, mixed type included 52.9% (212 of 401) of patients at admission and 87.3% (350 of 401) at discharge. Other studies also found a high proportion of mixed type patients: 35% (18 of 52) by Andreasen & Olsen (1982); 75% (44 of 59) by Moscarelli *et al* (1987); 46% (45 of 98) by Yu & Yang (1988); and 57% (29 of 51) by Kulhara *et al* (1986). Another problem is that most acutely ill patients with positive type or negative type revert to the no prominent symptoms subtype after treatment. Other studies have also found that neuroleptic treatment is associated with changes in the cross-sectional classification of both acute and chronic patients (Kay & Opler, 1987; Breier, 1987). There is, however, little crossover between pure positive and pure negative types; patients who are classed in either of the two pure types are, apparently, from two separate populations.

The advantage of using the scale scores as dimensional measures is that data from all patients can be included in the analysis, and the use of dimensional measures allows for the co-existence of both positive and negative syndromes in the same patient. Moreover, continuous dimensional scores are more sensitive to differences than the topological division into three types, and thus dimensional measures are more suitable for the assessment of changes in the severity of symptoms with treatment or for comparing the severity of positive and negative symptoms between different groups of patients.

Conclusion

It is clear that negative symptoms are not restricted to residual schizophrenic patients staying in chronic care hospitals; they are, rather, an integral part of the disorder at all stages of the illness. This should be understood more clearly by nosologists, clinicians, and researchers. Nosologists must incorporate negative symptoms more fully into the diagnostic criteria for schizophrenia and deal with the problem of how to determine schizophrenic subtype when the positive and negative symptom profile changes with time and/or treatment. Clinicians must include systematic evaluation of negative symptoms in their routine clinical examinations and consider management of negative symptoms in their standard treatment protocols for schizophrenic patients. Researchers must develop new methods of treatment that examine the drug-insensitive component of negative symptoms and continue to explore the many remaining conundrums of the positive–negative hypothesis.

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Suicidal Ideation as a Presenting Complaint
Associated Diagnoses and Characteristics in a Casualty Population

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A prospective study was conducted of all referrals to the emergency psychiatric service of an inner-London hospital over one year. There were 53 individuals who presented with the specific and spontaneous complaint of suicidal ideation without any accompanying act of self-harm. The main diagnoses in this group were personality disorders (40%) and alcohol dependence (15%); only 13% were suffering from depressive illness. Members of the group differed from the other 369 presenters to the service in that they were less likely to be accorded a diagnosis of a defined mental illness, twice as likely to have a criminal record, and more likely to have a previous history of deliberate self-harm. A quarter of the suicidal complainants were admitted to hospital following assessment.

Assessment of suicide risk is an important aspect of psychiatric practice, and the patient at risk of suicide evokes a high level of concern from psychiatric services. The 1971 National Institute for Mental Health task force (Beck *et al*, 1973) proposed a tripartite classification of 'suicidal' individuals into suicidal ideators, suicide attempters and suicide completers. The latter two groups have been extensively studied, both as regards psychological state and socio-demographic characteristics (Robins *et al*, 1959; Dorpat & Ripley, 1960; Barraclough *et al*, 1974; Weissman, 1974; Morgan *et al*, 1975; Kreitman, 1977; Newson-Smith & Hirsch, 1979; Allebeck *et al*, 1988). Of the first group, suicidal ideators, less is known. Suicidal ideation may be common; in a general population survey, 8.9% of people had experienced some degree of suicidal ideation in the year prior to interview (Paykel *et al*, 1974)

In the emergency setting, it is not unusual for people to present to psychiatric services complaining of such ideation. The Amsterdam Crisis Centre classified 15% of 942 consecutive clients as 'threatening suicide'; and the Groningen Psychiatric Emergency Unit identified 12% of cases over a one-year period as presenting with 'threat of suicide' (Cooper, 1979). Such reports accord with our own clinical experience in the emergency setting. However, to the best of our knowledge, such patients presenting as emergencies have not previously been the subject of systematic study, and there exists little information about them. In particular, it is unclear whether the complaint of suicidal ideation is associated with specific diagnoses in the emergency setting or whether it is a general feature of psychological distress in emergency presentations. Although suicidal thoughts are regarded as an important symptom by psychiatrists, it is uncertain whether the complaint of feeling suicidal is a prime determinant of management decisions in the emergency setting.

This paper reports a prospective study of all those presenting to an emergency psychiatric service over a one-year period with the specific and spontaneous complaint of suicidal ideation. The aims of the study were to find out how common such presentations are; to describe the characteristics of the people who present in this way; to discover how these people differ from other emergency presenters; and to ascertain the importance of these symptoms in determining clinical management.

To these ends, two main hypotheses were tested: that those presenting with the specific complaint of suicidal ideation would be suffering from depression or other mental illness, and that such presenters would be more likely to be admitted or followed up than other psychiatric presenters.

Method

The study was conducted at St Mary's Hospital, Paddington, London, the psychiatric unit of which serves a catchment area with a population of 70 700 according to the 1981 census. Despite some local areas of affluence, the district as a whole is characterised by widespread social morbidity. It ranks as either the second or fourth most deprived of the 192 districts in the country, depending on the indices used (Department of the Environment, 1983; Jarman, 1983). The accident and emergency department at St Mary's Hospital receives an emergency psychiatric consultation service 24 hours a day. Referrals to this service are accepted from any doctor or any professional with special responsibility for the mentally disordered. Self-referrals, direct to the duty psychiatrist, are not accepted; such patients are first seen by the casualty officer, who may refer on if appropriate.

All patients referred to the emergency psychiatric service over one year were studied prospectively. Each patient was subject to standard psychiatric interview, at the end of which the assessor completed a 93-item data schedule. This included demographic information, and details of referral, presenting complaint, past psychiatric history, criminal history, history of previous deliberate self-harm, drug and alcohol use, and disposal. Past psychiatric history was taken to mean formal interview with a general adult psychiatrist, as the use of a wider definition including psychotherapy or alcohol counselling would have provided less exact a measure. In addition, ratings were made of the psychiatrists' impressions as to patients' likelihood of self-harm ('suicide risk'), personal distress and manipulativeness. Attitude scales were specially designed. Each quality could be rated on a scale of 0–5 according to specified criteria (see appendix). 'Suicide risk' concerned the likelihood of self-harm within the following week, as judged by the assessing psychiatrist. 'Manipulativeness' concerned the degree to which the psychiatrist felt manipulated and was not an objective measurement of the patient's behaviour.

Diagnosis was recorded in two ways. Firstly, a single preferred ICD–9 diagnosis was allocated (World Health Organization, 1978). The ICD–9 was chosen because a pilot study had shown that attempts to use more exacting criteria were likely to result in numerous failures of classification in the emergency section.

A second axial system was used to allow classification along broader lines than those of the ICD–9 and so that mental illness and personality disorder could be recorded independently should the two conditions co-exist. Personality disorder was defined according to ICD–9 criteria. 'Mental illness' included those conditions described as psychoses or neuroses in ICD–9; it excluded substance abuse. In the axial system, personality disorder and current mental illness were each rated as 'definite', 'probable', 'possible', or 'absent'. In the analysis, 'possible' was included with 'absent' and 'probable' with 'definite'.

The study group comprised those patients referred as psychiatric emergencies whose presenting complaint at the start of the interview was a specific and spontaneous statement of suicidal ideation or intent. Patients were excluded from this group if any act of deliberate self-harm was associated with the presentation. This was done because the purpose of the study was to examine a group complaining of suicidal ideas on which they had not acted. The study group did not include those referred because of a risk of self-harm or suicide perceived by the referrer, or those from whom suicidal complaints were elicited only by direct questioning during the course of interview.

The reference group comprised all other emergency psychiatric cases seen in this setting over the same period, excluding those referred following an episode of self-harm. If a patient was seen on more than one occasion during the study period, data for the first presentation only were included in the analysis.

The characteristics of the study group and reference groups were determined. The two groups were then compared on pre-selected items using the χ^2 test (2-tailed), corrected for continuity.

Results

Over the one-year study period, data schedules were completed for 544 emergency psychiatric consultations. These comprised 85% of all patients who were identified in the casualty ledger as having been referred to the psychiatric emergency service. This estimate of the completeness of the data can be regarded as an underestimate, as not all patients who were referred for a psychiatric opinion remained in the department to be interviewed.

In 82 of the 544 consultations, the patient's presenting complaint was an explicit and spontaneous statement of suicidal ideation or intent. When repeat visits and cases of deliberate self-harm had been excluded, the study group contained 53 individuals and the reference group 369 individuals. No repeat visits with deliberate self-harm were recorded among those in the study group during the period for which data were collected. The length of clinical interview was 10–210 minutes, the average being 38 minutes. The shortest interviews were with floridly psychotic patients exhibiting gross behavioural disturbance who were already known to the assessors. The longest interviews were with those who eventually received diagnoses of personality disorder. For individual items in the data schedule, percentage figures given below relate to endorsed responses. Response rates for each item are specified in the tables.

Demographic data and history

Demographic data are presented in Table 1. In the study group, men, the single and the unemployed were in the majority. The mean age was 38.6 years. A quarter were living in temporary accommodation, usually 'bed and breakfast'; 13% were completely homeless (i.e. on the streets). A quarter were not registered with a local general practioner. The main source of referral was the Casualty Officer; about one-fifth were referred by GPs, and a significant minority (11%) were brought in by the police. There were no significant differences between the study group and the reference group.

Nearly three-quarters of the study group had a history of past contact with general adult psychiatry services, and in over half the last such consultation had been within the preceding two years. The study group did not differ in psychiatric history from the population of casualty presenters as a whole.

In the study group, 55% of patients had a history of deliberate self-harm, as opposed to 28% in the reference group ($\chi^2 = 14.27$, 1 d.f., $P = 0.0002$). Of the self-harming patients in both groups, most had harmed themselves on more than one occasion.

In the study group, 38% of patients admitted to a history of criminal activity leading to conviction, as opposed to 19% in the reference group ($\chi^2 = 8.31$, 1 d.f. $P = 0.0039$).

Intoxication at interview

Intoxication with alcohol or drugs (mainly benzodiazepines) was conspicuous at interview in 23% of the study group.

Table 1
Demographic and historical data

	Study group ($n=53$)	Reference group ($n=369$)
Men: %	60.4	49.3
Women: %	39.6	50.7[1]
Age		
Range	17–64	16.94
Mean	38.6	39.1
s.d.	13	15.6
Marital status		
% single, separated, divorced	62.3	73.1
% married/cohabiting	37.7	26.9[2]
Employment status		
% employed	30.2	24.9
% not employed	69.8	75.1[2]
Accommodation		
Permanent: %	62.3	66.2
Temporary: %	24.5	23.5[3]
Homeless: %	13.2	10.3
General practitioner		
% registered	75.5	75.6
% not registered	24.5	24.4[1]
Source of referral: %		
Casualty Officer	58.5	45.3
General practitioner	20.7	18.5
Police	9.5	18.2[1]
Others	11.3	18.0
Previous psychiatric history		
% yes	71.7	73.2
% no	28.3	27.8
% within past two years	54.7	63.0
Previous deliberate self-harm		
% yes	54.7	27.9
% no	45.3	72.1[1]
% more than once	45.3	19.8
Admitted to criminal record: %	37.7	19.2[1]

1. Response rate 95–100%.
2. Response rate 90–94%.
3. Response rate 85–89%.

Diagnosis and clinical data

The ICD–9 diagnoses are summarised in Table 2. In those presenting with suicidal ideation, personality disorder ($\chi^2=12.08$, $P=0.00005$), alcohol dependence ($\chi^2=7.36$, $P=0.0067$) and adjustment reaction (Fisher's exact $P=0.00013$) were each significantly more common than in the reference group. Depressive disorders were not significantly common in either group, occurring in only 13% of the study group. These disorders comprised neurotic depression (ICD 300.4) and depression not otherwise specified (ICD 311): there were no cases of depression recorded under ICD 296 (affective psychoses). In the reference group, 17% of patients were found to be suffering from depressive illness. Of these, 10 cases were 'psychotic' (ICD 296), 11 were recorded as neurotic and 41 as depression not otherwise specified (ICD 311). While diagnoses of schizophrenia or other non-affective functional psychoses were accorded to nearly a third of patients in the reference group, such diagnoses were uncommon in the study group. The range of diagnoses was wider in the reference group.

Table 2
Diagnosis and assessment scales

	Study group. %	Reference group: %
ICD–9 diagnoses	($n=53$)	($n=369$)
Personality disorder (301)	39.6	17.9
Alcohol dependence (303)	15.1	4.6
Acute stress and adjustment reactions (308, 309)	13.2	2.4
Depressive disorders (296, 300.4, 311)	13.2	16.8
Schizophrenia and paranoid states (295, 297)	5.7	29.5
Organic disorders (290, 291, 292, 293)	3.8	11.1
Drug abuse (304, 305)	7.5	3.3
Other[1]	1.9	14.4
Axial diagnostic system	($n=52$)	($n=349$)
Completed responses	98.1	94.6
Personality disorder		
Yes	55.8	28.9
No	44.2	71.1
Mental illness		
Yes	25.0	58.7
No	75.0	41.3
Suicide risk		
Low	41.5	88.1
High	58.5	11.9
Personal distress		
Low	37.7	45.3
High	62.3	54.7
Manipulativeness		
Low	44.4	73.4
High	55.6	26.6

1. Includes 'no diagnosis appropriate'.

The group presenting with suicidal ideation contained a greater proportion of personality-disordered (56%) than did the reference population (29%) ($\chi^2=13.67$, 1 d.f., $P=0.0002$). Conversely, the study group contained significantly fewer cases of defined mental illness (25%) than the remaining casualty presenters (59%) ($\chi^2=19.43$, 1 d.f., $P<0.0001$). Concurrent mental illness and personality disorder was found in only 6% of the study group and 10% of the reference group.

The suicide-risk scores for the two groups are illustrated in Fig. 1. There is a highly significant difference between them (Kendall's $S=13\,457$, approximate normal deviate $=8.51$, $P<0.0001$). The points on the suicide-risk scale (see appendix) were then combined to form two groups, 'low risk' (scores 0, 1 and 2) and 'high risk' (scores 3, 4 and 5). In the study group, 59% of patients were rated as high risk, compared with 12% in the reference population ($\chi^2=62.62$, 1 d.f., $P<0.0001$).

No significant difference was found between the two groups as to the psychiatrist's assessment of personal distress.

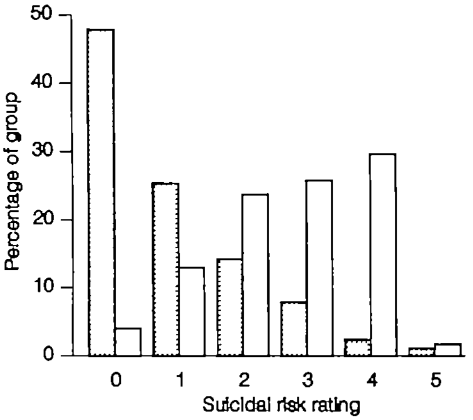

Fig. 1 Suicidal risk ratings (▨ reference group, □ study group)

In the study group 57% obtained scores of 3 or greater on the 0–5 manipulativeness scale (see appendix) compared with 27% in the reference population ($\chi^2 = 18.40$, 1 d.f., $P < 0.0001$).

Following emergency psychiatric consultation, a quarter of the study group were admitted to hospital, 36% were assigned to psychiatric out-patient follow-up or referral to other agencies, and 40% were discharged with no arranged follow-up. In the reference population, nearly half were admitted ($\chi^2 = 10.14$, $P = 0.0015$), and less than a quarter were discharged completely ($\chi^2 = 7.17$, $P = 0.0074$) (Table 3).

An extra analysis was performed to examine the effect of diagnosis upon disposal. Of those diagnosed as mentally ill (by the axial system), 69.2% were admitted in the study group and 66.3% in the reference population ($\chi^2 = 0.02$, 1 d.f., NS). Of those with personality disorder, 10% in the study group were admitted compared with 26.7% in the reference group ($\chi^2 = 6.55$, 1 d.f., $P = 0.0185$). Analysis of management in terms of suicidal risk rating shows that, of the high-risk patients in the study group, 32.3% were admitted and 26.7% discharged without follow-up; of the low risk patients, 13.6% were admitted and 54.5% discharged without follow-up. Thus, overall, individuals who were considered by the psychiatrist to be at high risk of suicide were less frequently discharged and more often admitted.

Table 3
Result of emergency consultation: percentage of patients

	Study group ($n = 53$)	Reference group ($n = 369$)
Admitted	24.5	48.9
Out-patient appointment	17.0	12.0
Day hospital referral	1.9	6.5
Referral to other helping agency	17.0	10.9
Discharged	39.6	21.7
Missing data	00.0	00.3

Discussion

Any expectation that presentation with the complaint of suicidal ideation would be strongly associated with depressive illness was not borne out by the study. Only 13% of those presenting with suicidal ideation were suffering from depressive illness. The main diagnoses were personality disorder (40%) and alcohol dependence (15%). Psychotic conditions were uncommon. At interview, 23% of patients were intoxicated with drugs or alcohol.

In many respects, those complaining of suicidal ideation were similar to other patients presenting as psychiatric emergencies. Yet, there were significant differences. The study group contained more patients with personality disorder, with a criminal record and with a history of deliberate self-harm, and fewer individuals with a defined mental illness. These differences suggest that the complaint of suicidal ideation does not occur randomly in the population presenting with psychological distress, but has specific associations.

Possible methodological influences on the results were considered. There are obvious difficulties attached to clinical interview in the emergency setting, where circumstances may restrict the scope of clinical interview, particularly at night. The average length of interview was 38 minutes, although some interviews lasted for two hours or more, generally in cases where no psychotic disorder was present. The reliability of diagnoses in emergency settings has been demonstrated, at least for the major diagnostic categories (Lieberman & Baker, 1985). But given the limited availability of background information on many patients, it is possible that in both groups the diagnosis of personality disorder in our series may have been less reliable than that of mental illness. In the study group, rates of personality disorder were high and depressive illness low. It has been suggested that depression may be underdiagnosed in character-disordered patients (Silver *et al*, 1971; Goldney *et al*, 1981; Caroll, 1982). Our data schedule permitted the recording of both mental illness and personality disorder, but only 6% of the study group were judged to exhibit both. It is possible that diagnostic bias occurred, but we do not consider that this could have been systematic or could have accounted for the differences observed between these two groups. We looked at the categories of depressive illness diagnosed in the study and noted that a number of cases were given the ICD grouping 311 ('Depression not otherwise specified'). This can be used as a 'waste bag' category, but a re-examination of the cases suggested simply that the form of depressive illness present in a number of our patients did not fall neatly into the main ICD categories for depression.

Patients who had harmed themselves as part of their presentation were excluded from this study, which concerned those complaining of suicidal ideation which had not been acted upon. A re-analysis of the data was made to include in the study group those who complained of suicidal ideation and had also harmed themselves as part of their presentation. This revealed no new differences, but the magnitude of the existing differences was increased.

The hypothesis that those presenting with the complaint of suicidal ideation would be more likely to be admitted or followed up was not supported by the results. Once psychiatric referral had been made, only 25% of the study group were admitted, and 40% were discharged with no follow-up. There do not appear to be any previous studies of similar groups of patients with which to compare our results. Figures for the related phenomenon of self-poisoning show that between 13.5% and 41% of cases are sent home direct from the accident and emergency department (Blake & Bramble, 1979; Gardner, 1980; Lintner, 1985; Owens & Jones, 1988).

Diagnosis has consistently been identified as an important determinant of disposal in the psychiatric emergency clinic (Marson *et al*, 1988). Patients with personality disorder are experienced unfavourably by psychiatrists (Lewis & Appleby, 1988) and are unwelcome clients for psychiatric services (Cooper, 1979). Self-harming patients are experienced negatively by doctors (Patel, 1975) and may be seen as hostile to those around them (Farmer, 1987). The study group contained a high proportion of patients with personality disorder and members of the group were given high scores on the manipulativeness rating, which suggests that they were indeed experienced in an unfavourable way. But management appears to be influenced by more than just the diagnosis, as there are differences in disposal even when the diagnosis of personality disorder is controlled for.

Another factor which may determine management is treatability. Treatment of those with personality disorder is always problematical, and as Podgorny (1981) has pointed out, admission to mental hospital may be contra-indicated for certain types of personality disorder, even in the presence of suicidal thoughts. It may be that most of those in the study group, although distressed and experiencing suicidal ideation, exhibited few features to indicate that they could be helped within the services available.

Indeed, the study group is not a random selection of all individuals in the district troubled by suicidal thoughts. It largely consists of those who chose to present to health professionals. Priest (1976), in a study of homeless persons with psychological problems, found that, paradoxically, those who had presented to medical services tended to be the ones least likely to benefit from treatment. Similarly, of those in the general population suffering suicidal ideation, it may be that those least amenable to treatment are more inclined to seek it as an emergency. The decision of a non-specialist doctor then to refer on for psychiatric opinion is not determined solely by the current mental state and diagnosis (Hoehn-Saric *et al*, 1980; Murphy *et al*, 1984; Khuri & Wood, 1984). Suicide is an emotive issue, and it may be that a referring doctor feels obliged on medico-legal grounds to refer for a psychiatric opinion anyone who presents with the complaint of suicidal ideation, regardless of whether or not any other features usually associated with inception into psychiatric care are found to be present.

Emergency management is affected by resource availability (Marson *et al*, 1988). All parts of the psychiatric service in our district were hard-pressed (National Health Advisory Service, 1988), and the doctors were constantly faced with conflicts over resource allocation. Opportunities for crisis intervention were few. Bed occupancy in the district was uncomfortably high and this was reflected in a correspondingly high threshold for admission. No specific crisis-intervention or counselling services existed. Most patients presented out of hours and there was no social worker available at these times except for statutory duties. Such pressures cannot account for the differences in management found in the study, but the contrast between the groups may have been heightened. In more affluent areas with less pressure on resources, there may be more scope for attempting intervention, even where the prospects appear poor. Yet the characteristics of those presenting with suicidal ideation suggest that they are less likely to be found in affluent populations; and it would be wrong to assume on available evidence that such patients are managed differently outside the inner city.

One interpretation of the disposal figure might be that those presenting with the complaint of suicidal ideation were not considered to be genuine by the assessing psychiatrists. But this does not fit with the data. The study group were, by and large, considered by the assessing doctors to be a high risk of serious harm (Fig. 1), and we detected no significant difference in levels of distress between this group and the other casualty patients. In fact, the casualty population as a whole were, according to risk-factor studies, at increased risk of serious self-harm in the longer term. This illustrates the low specificity and limited value of risk factors in the clinical setting

(Friedman *et al*, 1981; Murphy, 1986; Hawton, 1987). It appears that the presenting complaint of suicidal ideation in our study was likewise felt by the psychiatrists concerned to be of limited specificity in a population at above-average risk.

Conclusion

In this inner city series, presentation to the emergency psychiatric services with the specific complaint of suicidal ideation accounted for one referral in six. This presentation proved less closely associated with depressive illness than with long-standing maladjustment as evidenced by personality disorder, criminality, substance abuse and recurrent deliberate self-harm.

Suicidal ideation is common in mental illness. A quarter of those presenting to our service with this spontaneous complaint required admission to hospital. Yet, although the complaint of suicidal ideation may be sensitive as an indicator of suicide risk, it is not of high specificity. In this study, it was associated with characteristics which, although indicating an increased risk of serious self-harm (at least in the long term), render psychiatric intervention problematic and likely to prove of limited success. Suicidal ideation as a presenting complaint may frequently occur in the absence of mental illness and it is not the prime determinant of management decisions in the emergency setting.

Appendix: Attitude scales

Suicide risk

Rates the psychiatrist's belief as to the risk of the patient engaging in potentially life-threatening behaviour within one week of interview.

0 No risk
1 Very low risk: self-harm highly unlikely
2
3 Significant risk: occasions concern
4
5 Very high risk: overwhelming likelihood of self-harm.

Manipulativeness

Concerns the degree to which the psychiatrist feels manipulated, and is not an objective measure of the patient's behaviour. Includes feeling emotionally pressured, seduced or threatened.

0 Not manipulative at all
1 Mildly manipulative: psychiatrist feels patient aware of effect upon clinician
2
3 Moderately manipulative: psychiatrist feels subject to efforts to influence management decisions
4
5 Extremely manipulative.

Patient distress

Rates degree of patient's distress, however it arises, based upon current symptoms and observed features of mental state and behaviour.

0 No distress
1 Mild distress: a little nervous or unsettled
2
3 Moderate: overtly distressed
4
5 Severe distress: distraught and inconsolable; overwhelmed with fear or panic.

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Social Adjustment of Remitted Bipolar and Unipolar Out-patients

A Comparison with Age- and Sex-Matched Controls

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Various areas of social adjustment were compared using the Social Adjustment Scale in 27 remitted bipolars, 24 remitted unipolars and 25 normal controls matched for age and sex. Scores for global adjustment and for social and leisure activities were significantly worse in patients than in controls. The maladjustment in social and leisure activities appeared only in 'contact with friends' for bipolar patients and 'diminished social interactions' for unipolar patients. Unipolar patients differed significantly from controls on the items investigating sexual adjustment. In unipolars, social maladjustment seemed to be independent of the course of the disease; in bipolars, it was partly related to the mean number of lifetime episodes and current residual symptoms.

In recent years, social characteristics and interpersonal relationships of depressive patients have been given much attention. Brown & Harris (1978) have considered social factors such as unemployment and lack of a confiding relationship to be vulnerability factors which may increase the likelihood of a person developing an affective disorder in the presence of severe life events or long-term difficulties. Other authors, such as Paykel *et al* (1972), Weissman *et al* (1971), Casey & Tyrer (1986), De Lisio *et al* (1986) and Fredman *et al* (1988) have focused on the social dysfunction accompanying depressive episodes, which could be related to vulnerability factors, to symptoms of the episode or to personality traits of depressed patients. They all found depressed patients to be more socially impaired than psychiatrically healthy controls.

Long-term prospective studies by Paykel & Weissman (1973), Paykel *et al* (1978), Weissman *et al* (1978, 1979, 1981) and Perugi *et al* (1988) have described the course of this social maladjustment during the months or years following a depressive episode. These studies emphasised the differences between the clinical symptoms of depression and the social maladjustment of depressed patients.

In particular, the research of Weissman *et al* (1978, 1979, 1981) on the differential effect of drugs and psychotherapy in recovered unipolar depressed women indicated that weekly supportive psychotherapy ameliorated the long-term social adjustment of these patients, whereas maintenance antidepressants reduced the symptoms but did not improve social adjustment.

Paykel & Weissman (1973) and Perugi *et al* (1988) also focused on differentiating aspects (areas or factors) of social adjustment in depressed patients. Certain aspects of social maladjustment appeared to be symptom-related; others persisted long after the depressive episode was over. De Lisio *et al* (1986) and Perugi *et al* (1988), studying the social adjustment of depressed out-patients (79% unipolar, 8% bipolar and 13% dysthymic disorders in one group), noted that the two areas with most disturbance – work and leisure activities – were differently affected by the severity of depression: impairment of work activities seemed to be related to severity of symptoms, whereas impairment of leisure activities extended to patients with relatively low depressive symptoms. This led authors to favour the hypothesis that impairment in leisure activities might represent a trait marker of depression but they could not rule out the possibility of it being a residual complication of repeated depressive episodes.

None of the above studies has reported on the social adjustment of remitted patients with a clear definition of remission.

The longitudinal studies of Weissman *et al* (1978, 1979, 1981) and Perugi *et al* (1988) also lacked a sex- and age-matched control group studied under the same conditions, and so it could not be determined whether the observed psycho-social dysfunctions or improvements were specific to depressive patients.

Furthermore, none of the above-mentioned studies distinguished the social adjustment of bipolar depressive patients from that of unipolar depressive patients. The study of Dunner *et al* (1978) is, to our knowledge, the only one to have made this distinction. These authors found that the overall mean adjustment did not differ significantly in the two diagnostic groups, but they did not report the scores for the different areas of social adjustment, which other researchers have shown to be of interest (Paykel & Weissman, 1973; Perugi *et al*, 1988).

In the present study, we investigated the social adjustment of patients with a history of recurrent affective disorder – all in remission for at least six months – and of controls, in order to explore the following questions:

(a) Is the social adjustment of remitted depressed patients different from that of controls? If so, in which specific areas?
(b) Are socio-demographic variables such as sex, age and social class related to social adjustment in remitted patients and controls?
(c) Is there a difference between the adjustment of bipolar and unipolar patients?
(d) Is social adjustment related to the course of the illness (age at onset, number of major depressive episodes, number of hospital admissions, severity of residual depressive symptoms)?

Method

The investigation was carried out between 1986 and 1988 in the out-patient clinic of the psychiatric department of our university hospital. Subjects were selected for study on the basis of the Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978), the Research Diagnostic Criteria (RDC; Spitzer *et al*, 1978) and the Hamilton Rating Scale for Depression (HRSD–17; Hamilton, 1960). Two groups of remitted patients were studied: a group of 27 bipolar depressives (16 type I and 11 type II) and a group of 24 patients who had had recurrent unipolar major depressive disorder. Remission was defined according to RDC criteria (Spitzer *et al*, 1978) as the absence for at least six months of manic (definite or probable), hypomanic (definite), major depressive (definite or probable) and minor depressive (definite) episodes, and the absence for at least two months of minor depressive (probable) and hypomanic (probable) episodes. Using these criteria for remission, we observed HRSD–17 mean scores of 4.1 for bipolars (range 0–10) and 5.0 for unipolars (range 0–11). These scores are consistent with studies of the clinical status of depressed patients in remission (Goodnick *et al*, 1987). Patients were excluded from the study if they had schizoaffective disorders, drug or alcohol addiction, severe or chronic physical illness or neurological disorders. All patients had been on prophylactic medication for at least one year: lithium prophylaxis for bipolar patients and antidepressants for unipolar patients. Plasma levels of lithium and antidepressants were monitored regularly in all patients. We selected a sex- and age-matched control group of 26 subjects with no family or personal psychiatric history and no concurrent physical illness. All patients and controls were requested to give informed consent before inclusion in the study. Two bipolar patients and six unipolar patients refused to participate in the study. They did not differ significantly from the study group as regards age, sex, social position, or professional status.

Table 1 gives the socio-demographic characteristics of the three groups. Social class was assessed with the Index of Social Position (Hollingshead & Redlich, 1958). Early loss was defined as loss of mother or father either through death or permanent separation before the age of 18. None of the socio-demographic factors differed significantly between the three groups (ANOVA and χ^2 tests, all $P>0.05$), but within each of the three groups there were significantly more women and more married people (χ^2 test, $P<0.01$).

Table 1
Socio-demographic characteristics of the three groups

	Bipolars (*n*=27)	Unipolars (*n*=24)	Controls *n*=26)
Sex			
Male	10	8	11
Female	17	16	15
Age: years			
Mean	46.6	47.6	45.8
s.d.	14.3	11.4	13.7
Range	19–66	23–68	24–68
Marital status			
Single	7	0	3
Married, cohabiting	18	21	19
Divorced, separated	1	2	4
Widowed	1	1	0
Social position			
Median	2.5	3.0	3.0
Range	1–5	1–4	1–5
Professional status			
Working over half time	9	13	15
Housewife	13	9	8
Student	3	0	1
Other	2	2	2
Early loss	4	4	2

We compared the following dimensions of the course of the depressive illness in the two patient groups: age of onset, mean number of episodes per year over lifetime and in the previous four years, mean number of weeks in hospital per year over lifetime and in the previous four years, duration of illness, duration of prophylaxis, history of attempted suicide, and family history of psychiatric disorder. Only the lifetime number of weeks in hospital per year was significantly different in the two groups, with bipolar patients spending more time in hospital than unipolars (Student's *t*-test, $t=2.43$, d.f.$=36.82$, $P<0.05$).

Instruments and procedures

All subjects were examined by a psychiatrist, who conducted the interview with the SADS and diagnosed current and past condition using the RDC. HRSD–17 was used to assess mood. Subjects were then seen by one of two psychologists, who assessed social adjustment in the last two months with the Social Adjustment Scale (SAS; Weissman *et al*, 1971). The SAS is a semi-structured interview which covers five major areas of social functioning: work, as a worker, housewife or student; social and leisure activities; relationships with extended family; marital role; and parental role. Each area is investigated by rating a series of items and is then globally evaluated using all available information and the rater's personal judgement. Items cover both objective dimensions of patient behaviour and subjective patient feelings and satisfactions during the two months. The global evaluations of the five areas are summarised in a final global scale assessing overall social adjustment. Scales range from 1 to 5 for the individual items and from 1 to 7 for globals. Higher scores reflect poorer adjustment. Inter-rater reliability was established before the study on ten subjects, with the two psychologists alternately conducting the interview. Rater agreement within one point was as follows: 91% on the five-point item scales, 90% on the seven-point area scales, and 100% on the seven-point global scale. Additionally, the mean Pearson correlation was 0.91, indicating good agreement between raters.

Statistical analyses

Data were analysed using Pearson correlations (r), and one-factor (Oneway) and two-factor (ANOVA) analyses of variance on the SAS scores (Statistical Package for the Social Sciences; Norusis, 1986). In the current debate on the appropriate statistics for ordinal-level variables, we chose to use parametric statistics to stay in line with the data analysis reported in the literature and to follow the suggestion of Nie *et al* (1975) that the small errors that this might lead to will be offset by the advantages of using more powerful and more clearly interpretable statistics with known sampling error.

Results

In each area of the SAS, scores for the three groups were compared using one-factor analyses of variance (Oneway). When there was a significant difference between groups, a Student–Neuman–Keuls test was used to determine which pair-wise comparisons of means were statistically significant at the 0.05 level. Table 2 shows the results of this comparison. Scores for overall adjustment and for the area of social and leisure activities were significantly higher in the two patient groups than in controls ($F=15.09$; d.f. $=2$; $P<0.001$; and $F=4.75$; d.f. $=2$; $P<0.05$ respectively). In the area of marital relationships, unipolar patients differed significantly from controls ($F=3.92$; d.f. $=2$; $P<0.05$) but not from bipolar patients, whose scores lay between those of unipolars and controls.

A more detailed analysis was focused on the different items composing the two above-mentioned areas where a significant difference between the three groups was found. For unipolar patients, maladjustment in the area of social and leisure activities appeared only on the item 'diminished contacts with friends' ($F=6.17$; d.f. $=2$; $P<0.01$), which assesses the number of close friends met or heard on the phone in the two months. Unipolar patients had significantly fewer close friends than bipolar patients and controls. For bipolar patients, maladjustment in this area was found only in the item 'diminished social interactions' ($F=3.07$; d.f. $=2$; $P<0.05$), which evaluates how many times a subject has had social exchanges with friends in the two months preceding the interview. Thus, whereas unipolars seemed to have fewer close friends than bipolars and controls, bipolar patients had fewer social interactions with their friends.

Other items in the area of social and leisure activities were not significantly different between the three groups. In particular, the significant difference for the leisure item reported by De Lisio *et al* (1986) and Perugi *et al* (1988) did not appear in our results. There was a non-significant trend for bipolar patients to have greater impairment than controls in leisure activities ($F=1.75$; d.f. $=2$; $P>0.10$).

In the area of marital relationships, the difference between unipolar patients and the two other groups appeared only in the three items concerning sexual adjustment: 'diminished sexual intercourse' ($F=3.51$; d.f. $=2$; $P<0.05$), 'sexual problems' ($F=9.04$; d.f. $=2$; $P<0.001$) and 'disinterest in sex' ($F=14.74$; d.f. $=2$; $P<0.001$). The two patient groups differed significantly from controls for the item 'submissiveness', indicating that patients were less able to assert themselves than controls in front of the spouse's decisions or oppositions ($F=4.57$; d.f. $=2$; $P<0.05$).

Differences in the social adjustment areas according to sex and social class were analysed for the three groups with two-factor analyses of variance. In each group, Pearson correlation (r) was used to analyse the relation between age and social adjustment. In each area, subjects to whom the questions were not applicable were excluded (e.g. for the marital area, subjects living alone). Results show that social adjustment did not differ according to social class. The area of marital adjustment showed a significant sex difference: in all three groups, this adjustment was worse for women (ANOVA; $F2, 1=5.13$; $P<0.05$). Impairment in the area of work was negatively related to age in bipolars and in

Table 2
Comparison between the three groups: areas of social adjustment (mean scores (s.d.))

Areas	Bipolars	Unipolars	Controls
Work	2.16 (1.31)	2.34 (1.10)	1.58 (0.65)
Social and leisure activities	2.70 (1.23)**	2.83 (1.18)**	1.92 (0.89)
Relationship with extended family	2.34 (1.44)	2.47 (1 31)	1.96 (0.87)
Marital role	2.72 (1.07)	3.19 (1.24)*	2.04 (1.47)
Parental role	2.00 (0.60)	1.92 (1.10)	1.62 (0.62)
Overall adjustment	2.85 (0.91)***	3.17 (1.00)***	1.85 (0.54)

*$P<0\ 05$, **$P<0.01$, ***$P<0.001$ (comparison with controls, one-way)

controls ($r = -0.44$ and $r = -0.40$ respectively; $P < 0.05$), indicating worse adjustment at work for younger subjects.

To analyse the relation between the course of the depressive illness and social adjustment, we used Pearson correlation to test the relationship in the two patient groups between SAS scores and seven clinical variables: age at onset of the affective disorder; mean number of major depressive episodes per year since the beginning of the illness, and mean number per year in the four years prior to inclusion in the study; mean number of periods in hospital per year since the beginning of the illness, and mean number per year during the four years prior to the study; illness duration; and residual symptoms rated with HRSD.

Results (Table 3) show that age of onset was negatively correlated with relationship with extended family for unipolars ($r = -0.42$; $P < 0.05$) and with parental role for bipolars ($r = -0.65$; $P < 0.05$), indicating that adjustment in these areas was lower when the depressive illness started early. The mean number of lifetime episodes was significantly correlated with overall social maladjustment in the bipolar group ($r = 0.40$; $P < 0.05$) but not in the unipolar group ($r = -0.11$; $P > 0.05$). The mean number of episodes in the four years preceding the study was not significantly correlated with social adjustment in either group. The mean number of hospital stays was positively correlated with the parental role score for unipolar patients ($r = 0.61$; $P < 0.05$), suggesting more impairment in the parental role when the patient had had more hospital admissions. Illness duration was significantly correlated with maladjustment in parental role for bipolar patients. The HRSD score was significantly correlated with maladjustment in social and leisure activities in the bipolar group ($r = 0.47$; $P < 0.05$).

Discussion

As expected, we found mild overall social maladjustment in both groups of remitted affective disorder patients compared with controls. However, maladjustment affected only the area of social and leisure activities. Analysis of the different items composing this area provides a better specification of the nature of this social maladjustment. The two items showing a significant difference between patients and controls were 'diminished contacts with friends' for unipolar patients and 'diminished social interactions' for bipolar patients. The leisure item was not significantly different between patients and controls, contrary to the results of De Lisio *et al* (1986) and Perugi *et al* (1988). In our sample, patients did not have particular difficulties in leisure activities, but their ability to develop social relationships with people who were not work colleagues or members of their family tended to be impaired. This suggests that, for these patients, having an institutional environment (work, family) is important to facilitate development of social relationships.

Table 3
Social adjustment and course of illness

SAS	Social adjustment according to age at onset: r				Social adjustment according to mean number of episodes per year. r			
	Bipolars		Unipolars		Bipolars		Unipolars	
		(No.)		(No.)	Lifetime	4 years	Lifetime	4 years
Work	−0.31	(24)	−0.20	(23)	−0.16	0.00	0.23	0.11
Social and leisure activities	0.11	(27)	−0.25	(24)	0.23	0.30	−0.40	0.06
Relationships with extended family	−0.13	(26)	−0.42*	(23)	−0.08	0.05	−0.25	−0.12
Marital role	−0.05	(18)	−0.12	(21)	−0.02	−0.32	−0.00	0.18
Parental role	−0.65*	(9)	−0.38	(15)	−0.16	0.45	0.44	0.22
Overall adjustment	−0.07	(27)	−0.34	(24)	0.40*	0.27	−0.11	0.20

SAS	Social adjustment according to number of hospital stays per year: r				Social adjustment according to illness duration: r		Social adjustment according to HRSD scores: r	
	Bipolars		Unipolars		Bipolars	Unipolars	Bipolars	Unipolars
	Lifetime	4 years	Lifetime	4 years				
Work	−0.13	0.01	0.39	0.15	−0.16	−0.04	−0.10	−0.10
Social and leisure activities	0.37	0.33	−0.17	0.11	−0.30	0.24	0.47*	−0.20
Relationships with extended family	−0.16	0.06	−0.19	−0.03	0.01	0.28	0.17	−0.14
Marital role	−0.28	−0.39	0.29	0.02	−0.04	0.02	−0.08	0.25
Parental role	−0.46	0.57	0.61*	0.21	0.78*	−0.10	0.20	−0.07
Overall adjustment	0.10	0.20	0.29	0.12	−0.15	−0.02	0.19	−0.01

*$P \leq 0.05$ (2-tailed).

The relationship between social adjustment and socio-demographic variables was investigated. Social adjustment of patients and controls was not related to age or social class. In the marital area, women of the three groups showed worse adjustment than men. This result is in line with Crowther's (1985) observation that depressed men rate their marriages as significantly better adjusted than depressed women. However, as this difference was also present in our control group, and Crowther had no control group of psychiatrically healthy subjects, this sex difference in marital adjustment does not seem to be specific for depressive patients. Rather, it could be attributed to a tendency of men to under-report their marital maladjustment.

Comparison of bipolars and unipolars showed a specific maladjustment for unipolars in the marital role area. Analysis of the items composing this area showed sexual problems for unipolar patients but not for bipolar patients. It is difficult, however, to determine whether this sexual impairment is a residual symptom of previous depressive episodes or if it is a trait marker of unipolar patients. During interviews, many unipolar patients declared that they had nearly always had poor interest in sex, but the reliability of such retrospective judgements is questionable and only epidemiological prospective studies can provide further information on this point. For bipolar patients, difficulties in social relationships appeared in 'diminished contacts with friends', whereas for unipolar patients they appeared in 'diminished social interactions'. Thus, unipolars reported having fewer close friends than bipolars; bipolars had about as many close friends as controls, but reported fewer social interactions with them. The latter observation could be related to the probably more superficial investment in social relationships by bipolar patients, as suggested by studies of personality traits of bipolar patients (Cohen *et al*, 1954; Matussek & Wolfgang, 1983), which emphasise the conforming aspect of the behaviour of bipolars.

Clinical variables such as age at onset of affective disorder, residual symptoms, mean number of episodes per year of illness and mean number of periods in hospital per year of illness seemed unrelated to the social maladjustment of unipolars and moderately related to that of bipolars. Bipolars' overall social maladjustment was associated with the mean number of episodes per year of illness over their lifetime, but not in the last four years preceding the interview. An additional analysis showed that bipolars had a significantly lower mean number of episodes during the four years before the study than over their lifetime (paired-samples t-test; $t=3.01$; d.f. $=26$; $P<0.01$); in unipolars, the number of episodes seemed to remain constant over time (paired-samples t-test; $t=0.31$; d.f. $=23$; $P>0.1$). This suggests that bipolars begin their illness with more episodes than do unipolars, but reduce their number of episodes after their illness has been stabilised with lithium treatment. Thus the significant association between the bipolars' overall social maladjustment and their mean number of lifetime episodes per year leads us to hypothesise that the recurrent episodes at the beginning of the manic–depressive illness could have impaired the patients' social adjustment, leading to current deficiencies. HRSD scores correlated significantly with bipolar patients' maladjustment in the area of social and leisure activities, suggesting that this maladjustment could be partly linked to residual symptoms between the episodes. However, the cross-sectional design does not allow us to conclude whether residual symptoms are a cause or an effect of bipolars' social maladjustment.

Prospective data are needed to better explore the relationship between social adjustment and the course of affective disorder. In particular, it would be of interest to investigate whether the mild social maladjustment during the remission period has an influence on later relapses, and how these relapses, in turn, have an effect on short-term and long-term social adjustment.

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The COSTAR Programme. 1: Improving Social Networks of the Long-Term Mentally Ill

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The present study examined the socio-demographic, clinical, cognitive, social behaviour and social network characteristics of the 97 patients in contact with the COSTAR programme – a mobile treatment and case management service for the long-term mentally ill in inner-city Baltimore. Compared with shorter-contact patients, those in contact for more than one year showed no change in symptoms, or in cognitive or global function. They did manifest improved social function, especially for slowness, personal hygiene and posturing. The long-contact group showed improvements in the quality and quantity of their social networks. Our results suggest that a home-based treatment system can help patients to reverse a vicious cycle of social isolation and to establish supportive social contacts

Although there are an estimated two million chronic mentally ill in the USA, there are fewer than 130 000 psychiatric in-patients. The vast majority of disabled patients now live outside hospital (Thornicroft & Bebbington, 1989). Although there has been considerable research into the quality of life, problems of homelessness, organisation of services, use of case managers, financial resource allocation, and government policy towards this patient group, there have been few attempts to evaluate the effectiveness of mobile services for the seriously mentally ill in deprived inner-city areas (Avison & Speechly, 1987). This paper describes the COSTAR (Community Support Treatment and Rehabilitation) programme in Baltimore, a mobile treatment and case management service for the severely mentally ill, and reports the results of an evaluation of patient outcome with respect to duration of contact with the programme.

Prompted by growing evidence of the adverse effects of long-term institutionalisation, the Program for Assertive Community Treatment (PACT) outreach model of service delivery to the seriously mentally ill (also known as Training in Community Living) was pioneered by staff at the Mendota State Hospital in Madison, Wisconsin. The approach emphasises the importance of material resources, coping skills, motivation, freedom from pathologically dependent relationships, public education, and assertive home-based psychiatric treatment (Stein & Test, 1980).

The model has been successfully replicated in Sydney, Montreal, and inner-city Chicago. It is now being implemented in Vermont, Philadelphia, Cincinnati, Indianapolis, Vermont, and London. Patient outcomes are not, in any published case, worse than with standard hospital treatment, and are often better (Braun *et al*, 1981). These studies, however, often employ service utilisation (especially hospital readmission) as the main outcome variable, rather than a range of clinical, social and quality of life information, and rarely examine specific hypotheses.

Established in Baltimore in 1985, the COSTAR programme is a service of the Johns Hopkins Community Psychiatry Programme in East Baltimore. The catchment population of about 75 000 is over 80% black, and the area is characterised by high indices of social deprivation. The mobile clinical team includes six nurses, three social workers, one counsellor, two clerical staff and two part-time psychiatrists (9.5 whole-time equivalent staff). Serving 97 patients, the team's staff to patient ratio is 1 : 10. Each patient is assigned to a psychiatrist and a clinician (nurse or social worker), who are jointly responsible for all aspects of the patients' assessment and treatment. The treatment team accepts potentially indefinite care for its patients. Each clinician is both a therapist and a case manager, working directly with patients and acting as a broker between them and other agencies.

Contact with the 97 patients takes place predominantly outside the programme offices: at the patients' homes, in local cafes, in visits to local shops, or at social service agencies. The frequency of contact ranges from daily to less than once a month, with a mean of three contacts per week. An on-call clinician provides an out of hours service to patients, and can consult or refer to one of the programme psychiatrists. Urgent treatment is available at the Psychiatric Emergency Service of Johns Hopkins Hospital. The programme is closely linked with 'Changing Directions', a psychiatric rehabilitation centre (Breakey, 1989).

The aims of this study were to establish the socio-demographic, psychiatric and social network characteristics of the study population, to describe their social, cognitive and mental states, and to relate these variables to duration of contact with the COSTAR programme.

Three hypotheses were tested: that a long-contact group (more than 12 months in COSTAR) will show (a) lower levels of psychiatric symptoms, (b) improved social function, and (c) enhanced social networks, when compared with a short-contact group (12 months or less in COSTAR).

Method

Data were collected from interviews with the patients, key informants (either the clinician or a relative), and from case note review. Interviews were conducted over a three-month period by a research psychiatrist with no clinical responsibility for the patients. Most patients were interviewed at home, or at the COSTAR offices, but five were seen in hospital while in relapse, and one was assessed in Baltimore City Jail.

The study population comprised all 97 patients within the COSTAR programme. They had entered the programme during the 30 months since its inception. The entry criteria to the programme are:

(a) age 18–80 years
(b) primary diagnosis (DSM–III–R) of schizophrenia, schizoaffective disorder, affective disorder, or a psychosis not otherwise specified (American Psychiatric Association, 1987)
(c) living within or close to the catchment area of the Johns Hopkins Community Psychiatry Programme in East Baltimore
(d) no primary diagnosis of dementia or delirium
(e) failure to comply with treatment in traditional out-patient settings, or a history of frequent relapses.

In practice, the patients admitted to the programme are those who have failed to benefit from the usual out-patient services, and who have lost contact with services between admissions.

Of the 97 patients in the COSTAR programme, interview information was not obtained from 17 patients (13 refused to be interviewed, two were not traceable, and two patients were in early relapse and an interview was not advisable). Apart from the study group, in the first 30 months of COSTAR's operation, only nine patients had separated from the service (two died of cardiovascular disease, six were transferred to long-term hospitals or nursing homes, and one was discharged at his own request).

The assessment instruments used in the study were:

(a) socio-demographic data and psychiatric history at entry to the programme
(b) Brief Psychiatric Rating Scale (BPRS; Overall & Gorham, 1962)
(c) Social Behaviour Schedule (SBS; Wykes & Sturt, 1986)
(d) Mini Mental State Examination (MMSE; Folstein *et al*, 1975)
(e) Social Network Schedule (SNS; TAPS, 1989) and the Interview Measure for Social Relationships (IMSR; Brugha *et al*, 1987)
(f) Global Assessment Scale (GAS; Endicott *et al*, 1976).

For the comparisons between the short-contact ($n = 45$, mean time in contact = 7.8 months) and long-contact ($n = 52$, mean time in contact 17.6 months) groups, Student's t-tests were used for the continuous variables, and the χ^2 for the categorical variables, using Statistical Analysis System (SAS) software.

Results

Among the 97 patients, the sexes were equally represented, 90% of the patients were black, and the same percentage had no paid occupation. Over half (54%) lived with a non-spouse relative, 13% with a spouse and 25% alone. Half were single, and one-third (32%) were divorced or separated. It was notable that twice as many male patients were single (70% v. 30%), while the females were twice as likely to be divorced or separated (70% v. 30%). There were no statistically significant social or demographic differences between the short-contact and long-contact groups.

Past psychiatric history and current treatment data are shown in Table 1. There were no significant diagnostic differences between groups, and although the long-contact group had fewer previous psychiatric admissions, the total time in hospital was not significantly different between groups, and indeed the pattern for most patients is of recurrent but brief admissions. Over half (52%) had been admitted to a psychiatric unit at least five times; only 20% had been in hospital for a total of over two years before entering the COSTAR programme. A further 20% had no previous admissions (Table 1). For the total group, by DSM–III–R criteria, 60 (62%) were schizophrenic, and 28 (29%) received a classification

Table 1
Psychiatric history and treatment characteristics

	Long contact (>1 year) ($n = 52$)	Short contact (<1 year) ($n = 45$)
Total time in hospital		
none	3	0
2 years or less	42	33
more than 2 years	7	12
No. of previous admissions		
0 or 1	11	2
2–4	14	20
5 or more	27	23
Primary diagnosis (DSM–III–R)		
schizophrenia	35	25
(paranoid)	(17)	(12)
bipolar disorders	13	12
major depression	1	2
other psychoses	3	5
other	0	1

Table 2
Mean scores (95% confidence intervals) on SNS items

	Short contact (<1 year) ($n=45$)		Long contact (>1 year) ($n=52$)		P
Primary group size	10.2	(8.8–11.6)	15.0	(11.9–18.1)	0.01
Weekly contacts	4.9	(3.8–6.9)	7.3	(5.3–9.3)	0.05
Relatives in contact	4.7	(3.5–5.9)	7.6	(5.4–9.8)	0.03
Number of confidantes	2.6	(1.8–3.4)	3.7	(2.8–4.6)	0.07
Other people missed	8.1	(6.6–9.6)	10.8	(8.3–13.3)	0.07
Number of infrequent contacts	0.9	(0.3–1.5)	2.6	(1.0–4.2)	0.05
Number of friends	2.2	(1.3–3.1)	3.3	(2.7–3.9)	>0.1
Number of active contacts	3.9	(3.3–4.5)	5.4	(3.8–7.0)	>0.1
Number of passive contacts	5.7	(4.2–7.2)	7.6	(5.4–10.0)	>0.1
Number of visitors	4.5	(3.2–5.8)	5.9	(4.0–7.8)	>0.1
Network density	0.60	(0.54–0.66)	0.57	(0.51–0.63)	>0.1

of affective disorder, of whom 18 (19%) were bipolar disorder (manic), 7 (7%) were bipolar (depressed), and 3 (3%) had major depression. Anti-psychotic medication was received by 86 (90%) of the patients, and mood-stabilising drugs by 33 (34%). Two-thirds (65%) were prescribed anticholinergic medications. The results showed a non-significant tendency for long-contact patients to receive more antipsychotic medication, and fewer mood-stabilising medications.

The 18 items from the BPRS were rated on a five-point scale (0–4), and the total score lay in the range 0–72. The overall mean BPRS score was 10.5 (95% CI 9.1–11.9). The most frequently rated items were: suspiciousness (48%), emotional withdrawal (44%), hallucinations (35%), motor retardation (34%), posturing (26%), and disorganised thoughts (25%), indicating that many of the patients continued to manifest the positive and negative symptoms of psychosis. There was no significant difference in the total BPRS scores between the long-contact (mean 10.0, CI 7.9–11.9) and short-contact (mean 11.3, CI 9.5–13.4) groups.

Cognitive state was measured with the Mini Mental State Examination on a 0–30 scale. The mean score was 26.4 (95% CI 25.6–27.2), with no difference between long-contact and short-contact groups. The mean GAS score for all patients was 57.1. Endicott *et al* (1976) describe the interval 51–60 as "moderate symptoms or generally functioning with some difficulty, for example few friends and flat affect, depressed mood, and pathological self-doubt, euphoric mood and pressure of speech, moderately severe antisocial behaviour". Again a very considerable range of functioning was present from 20 (needs supervision or gross impairment in communication) to 80 (minimal symptoms and slight impairment). The GAS scores showed no difference between groups.

Using a cut-off of two or more for individual SBS items, the most frequently occurring social behaviour problems were: passive leisure interests (47%), underactivity (42%), poor hygiene (36%), and slowness (19%). Of the first 20 items of the SBS, two showed no differences between the two groups, and five showed less social disability among the short-contact group. Thirteen items showed better social functioning in the long-contact group, and this was most marked for slowness ($P=0.03$), poor personal hygiene ($P=0.07$), and depressed mood ($P=0.09$). With a cut-off of 2 or more for each item, the total number of social behaviour problems was lower in the long-contact (mean 2.3, 95% CI 1.7–2.9) than in the short-contact group (mean 3.1, 95% CI 2.5–3.7, Student's t-test $P=0.06$).

Patients' social networks, measured by the SNS and IMSR ratings, were surprisingly extensive. The mean number in the patients' primary group (defined for the SNS as contacts with whom there were meaningful contacts at least every month) was 13.1 (95% CI 11.8–14.9), while patients described having regular contacts with twice as many relatives (mean 6.4) as friends (2.9) or acquaintances (3.0). Many of the patients had large extended family networks: several patients described primary group, weekly contact and friendship circles in excess of 30. There was, however, very considerable variation within the social network variables: the range for the number of primary group members, for example, was between two and 48.

The most striking differences between the long- and short-contact groups were the quantity and quality of their social networks (see Table 2). The long-contact group had more primary group members, more contact with relatives, and more weekly and infrequent contacts. The mean measure of network density – the degree to which network members know each other – showed no difference between groups.

Aspects of both the patients' perceptions of others (high suspicion score) and others' perceptions of the patients (a high rating by key informants for odd conversation) were highly associated with many measures of social network quality and quantity (Table 3).

Discussion

The results of this study must be interpreted carefully, since it is a cross-sectional investigation designed to explore three specific hypotheses. The results may be misleading because of confounding or bias. The main comparison of interest is between

Table 3
Mean scores for SNS items and perceptions by patients (suspiciousness) and perceptions of patients (odd conversation)

SNS variable	Score for odd conversation (SBS) low (*n*=67)	high (*n*=8)	*P*[1]	Score for suspiciousness (BPRS) low (*n*=52)	high (*n*=24)	*P*[1]
Primary group	13.7	7.9	0.13	14.3	10.3	0.05
Relatives in contact	6.8	3.0	0.04	7.6	4.0	0.002
Number of confidantes	3.5	1.5	0.02	2.8	4.4	0.04
People missed	10.2	6.0	0.01	10.3	8.4	0.17
Passive contacts	7.2	4.5	0.13	7.6	5.0	0.06
Visitors	5.6	4.0	0.19	6.1	3.9	0.04
Daily contacts	2.6	1.5	0.13	2.8	1.8	0.05

1. Student's *t*-test.

patients with short and long duration of contact with the outreach programme. Time may confound the relationship between intervention and outcome either because the patients became better irrespective of treatment, or because chronic psychotic conditions may fluctuate in severity.

Selection bias cannot be excluded, but is limited by the clinical view of the COSTAR staff that the first patients referred to the service (long-contact group) were those whom out-patient services had found most difficult, biasing the results towards poorer outcome for the longer-contact group – the reverse of the actual findings. Even so, the socio-demographic and psychiatric characteristics of the two groups on admission to the COSTAR programme were not significantly different. Observer bias was minimised by the investigator having no clinical responsibility for or prior knowledge of the patients, and being blind to duration of contact with the programme. Response bias was minimised by informants and subjects being blind to the specific hypotheses under test.

The first hypothesis, that longer-contact patients have fewer symptoms, is not supported by the results. No significant differences were found for the symptom measures (BPRS, MMSE, GAS) (although the tendency in each was for fewer symptoms in the longer-contact group). An earlier, unpublished study of 32 patients served by COSTAR found that 47% of patients were 'extremely' symptomatic at intake into the programme, compared with 16% at one-year follow-up. A possible explanation of these findings, therefore, is that the issues of medication use and compliance were successfully dealt with in the first weeks and months of contact with the programme, so that symptoms reduced rapidly and rendered little scope for later improvement. Cognitively, both groups showed no substantial impairment, and the mean MMSE scores were above the upper 5th percentile of the normal population (Folstein *et al*, 1975), allowing little room for improvement. Similarly, the failure to find higher GAS scores in the long-contact group may reflect the fact that two-thirds of the scores were within the higher range (55–70) and again did not allow for much further improvement. A longer-term follow-up study will establish whether this symptom stability persists.

The second hypothesis, that long-contact patients would demonstrate improved social function, was partly supported. Better scores were recorded in the areas of slowness, poor personal hygiene, and depressed mood. The long-contact patients scored no worse than the short-contact for all the SBS items. These data are consistent with the findings of Wykes & Sturt (1986), that SBS and mental state (Present State Examination) ratings did not correlate among a group of long-term mentally ill patients. Indeed there may be a considerable delay between treatment and improvement in social function, and longer-term follow-up will test this proposition.

The third hypothesis was substantially confirmed by the results: the long-contact group did show markedly greater quality and quantity of their social networks. Indeed previous work has repeatedly found that social isolation is associated with poorer outcome for chronic schizophrenia at three levels (Henderson *et al*, 1978; Brugha *et al*, 1982). At the ecological level, isolation has been recognised by the aggregation of such patients in inner-city areas. Secondly, the isolation of living alone has been associated with earlier psychotic relapse. Thirdly, the isolation of single marital status is more common among those with chronic schizophrenia. Finally, contact with fewer friends has been correlated with poorer outcome for schizophrenic patients.

The converse association may hold: that intimate and supportive personal relationships are associated with better outcome, and this would have important implications for community-based psychiatric services. In planning both the discharge of long-term inpatients, and the transfer of such patients between wards and hospitals, existing support networks may need to be recognised and sustained. Where support resources are insufficient, staff may need to implement a prosthetic network of professional and voluntary services (Goering *et al*, 1988; Harris & Bergman, 1988). For patients whose condition has interrupted family and friendship ties, a primary function for the case manager may be the reconstitution of such social relationships (Intagliata, 1982). In particular, barriers to forming or maintaining intimate relationships may be an important focus for family intervention.

An aetiological cycle can be postulated. Not only may inadequate social networks have an adverse effect upon the outcome of schizophrenia, but also certain characteristics of such patients may weaken their social networks and cause them to become more isolated. The results shown in Table 3 support this proposal. Contributions from both the patient (a high suspiciousness score from the BPRS) and from patients' social contacts (a high SBS rating of odd conversation by key informants) can form a vicious circle which produces increasing social isolation and disability. The success of the COSTAR model may be partly due to reducing symptoms through tighter control of treatment, and encouraging social reintegration, so that the cycle is reversed. This hypothesis will be tested by a randomised controlled trial of the COSTAR programme.

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A Comparison of Nutritional Management with Stress Management in the Treatment of Bulimia Nervosa

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In a comparison of nutritional management (NM) and stress management (SM) for treatment of bulimia nervosa, 55 female patients were randomly assigned to either treatment. Therapy consisted of 15 sessions in a group over three months, by the end of which, patients under both treatment conditions showed a significant reduction in the frequency of binge eating and vomiting and a significant improvement in various psychopathological features such as body dissatisfaction and depression. All improvements were maintained over 12-month follow-up. NM produced a more rapid improvement in general eating behaviour, a faster reduction in binge frequency and a higher abstinence rate from binge eating. SM led to greater positive changes in certain psychopathological features such as feelings of ineffectiveness, interpersonal distrust and anxiety. NM should be regarded as a necessary first intervention in all bulimic patients. Further psychological therapy, such as SM, is indicated as well for some patients, depending on their specific psychological difficulties.

The most obvious symptoms of bulimia nervosa are episodes of uncontrolled overeating (or binge eating) with subsequent purgation by means of self-induced vomiting and/or the abuse of laxatives. Other important features of the illness are an overconcern with shape and weight with persistent attempts to control them rigidly by dieting and sometimes by strenuous exercise, depression, and poorly developed problem-solving and assertion skills (Russell, 1979; Abraham & Beumont, 1982; Fairburn & Cooper, 1984). No single cause has been identified either in its aetiology or its maintenance. Three behaviourally derived theories warrant special attention: the theory of a causal relationship between dietary restraint and binge eating, the interpersonal-stress theory, and the anxiety-reduction theory. Although clearly they are not mutually exclusive, each of these theories implies a specific approach to treatment.

According to the theory of dietary restraint, the patients' inappropriate everyday eating behaviour is responsible for the occurrence of bulimic episodes. The eating behaviour of bulimic patients is characterised by repeated attempts to restrict daily caloric intake, to alter food composition in order to avoid carbohydrates and fat, and to alter the temporal order of meals so as to extend intermeal intervals (Schweiger *et al*, 1988; Rossiter *et al*, 1988; Woell *et al*, 1989). Therefore, despite consuming large amounts of food during binge-eating episodes, and hence usually staying within the normal weight range, bulimic patients are nevertheless in a state of intermittent semi-starvation (Pirke *et al*, 1985).

A causal relationship between dietary restraint and binge eating is suggested by evidence from several sources (see Polivy & Herman, 1985, for a detailed discussion). Laboratory studies have demonstrated that normal restrained eaters are likely to overeat under disinhibitory conditions (e.g. forced preload, stress or alcohol) (Herman & Polivy, 1988). In a long-term semi-starvation experiment, most of the participants experienced bouts of overeating during the period of enforced food restriction (Keys *et al*, 1950). Clinical observations have shown that about 80% of bulimic patients had attempted to lose weight by dieting before the onset of binge eating (Fairburn & Cooper, 1982), and a significant correlation has been found between the degree of dietary restraint and bulimic tendencies (Kirkley *et al*, 1988). Not only is restrained eating conducive to binge eating, it is also responsible for most of the associated biochemical abnormalities (for overview see Fava *et al*, 1989). This relationship has been demonstrated in patients with bulimia nervosa (Fichter *et al*, 1988) and also in normal restrained eaters (Pirke *et al*, 1990). Therefore, according to the theory of dietary restraint, it is not binge eating itself, but rather the eating behaviour between the binge episodes, which should be the primary target for intervention.

The interpersonal-stress theory proposes that binge eating is triggered by stressful antecedent events. Overeating is seen as a learned response to external and internal stress stimuli, which is reinforced by positive short-term consequences. Support for this theory comes from observations that binge eating often occurs in frustrating and problematic situations which are associated with negative feelings such as depression, anger or anxiety (Abraham & Beumont, 1982; Hawkins & Clement, 1984; Loro & Orleans, 1981). Under these circumstances, overeating may provide short-term relief from uncomfortable feelings. Hence, bulimia can be interpreted as a maladaptive coping strategy to manage stressful situations or interpersonal problems. The various purging behaviours and the additional psychopathology are then viewed as a consequence of the bulimic episodes. According to this formulation, the bulimic episodes should be the primary focus of treatment and the patients should be helped to acquire adequate coping and problem-solving skills.

The third theory proposes that vomiting plays a central role in the maintenance of binge eating. Rosen & Leitenberg (1985) suggested that vomiting serves an anxiety-reducing function in bulimic patients similar to compulsive hand-washing and checking rituals in patients with obsessive–compulsive neuroses. Because vomiting reduces the negative consequences of binge eating, bulimic episodes are maintained via negative reinforcement. Therefore, to gain control over the disorder, the problem of vomiting should be attacked first rather than the binge eating or the between-binge behaviours.

Although substantial improvement in bulimic symptoms can be achieved with other forms of treatment (Fairburn *et al*, 1986; Freeman *et al*, 1988; Agras *et al*, 1989), much attention is currently given to cognitive-behavioural programmes, most of which derive from that of Fairburn (1985). The cognitive-behavioural approach takes into account the factors suggested by the dietary-restraint and interpersonal-stress theories and it has been shown to be effective in reducing bulimic symptoms (Fairburn *et al*, 1986; Agras *et al*, 1989). Response prevention of vomiting, based on the anxiety-reduction theory, was also found to be effective in the studies of Wilson *et al* (1986) and of Leitenberg *et al* (1988), but had no incremental effect when added to a cognitive-behavioural treatment package (Agras *et al*, 1989).

Cognitive-behavioural programmes are broad-spectrum packages. The first stage of treatment contains a form of nutritional management, advising avoidance of binge food but including some procedures designed to modify the restrictive eating behaviour of the patients. These procedures include self-monitoring of eating, the prescription of a regular meal pattern and the introduction of stimulus-control measures. In addition, patients are provided with information relevant to dieting and bulimic behaviour. The second stage of such programmes is usually directed to modify other features of the disorder (e.g. the overconcern about shape and weight or difficulties in social relationships), applying intervention techniques such as cognitive restructuring, training in problem-solving skills, social skills, and coping with stress (Fairburn, 1985; Agras *et al*, 1989). The relative efficacy of these various aspects of cognitive-behaviour therapy cannot be determined from published studies. However, there are some hints that normalising everyday eating behaviour alone may lead to substantial improvement in bulimic symptoms (O'Connor *et al*, 1988; Agras *et al*, 1989; Cooper *et al*, 1989). Hence, there are both empirical and theoretical reasons for suggesting that modification of the patients' dietary-restraint behaviour may be the core aspect of the treatment of bulimia nervosa.

The present study has been designed to evaluate the efficacy of a nutritional-management programme which was aimed specifically at modifying restrained eating. The programme was predominantly educational but inevitably involved some behavioural and cognitive elements. However, there was no deliberate attempt to restructure the patients' cognitions. This nutritional management was compared to another theoretically based therapeutic approach, a stress-management programme that focused on interventions aimed at modifying coping behaviour. This latter treatment did not include any specific form of nutritional counselling.

Method

All subjects met DSM-III-R criteria (American Psychiatric Association, 1987) for bulimia nervosa. Additional selection criteria were: (a) female and aged between 18 and 35 years; (b) normal weight, i.e. a body mass index (BMI: kg/m^2) between 18 and 24; (c) not more than two previous in-patient treatments for psychiatric conditions; (d) no concurrent psychological or pharmacological treatment; (e) no co-existing major psychiatric disorder other than affective or anxiety disorders; (f) no indications for in-patient treatment, because of either a serious suicide risk or poor physical health. These criteria were checked by a semistructured interview, carried out by two independent assessors (one psychologist and one psychiatrist).

Eighty-five patients presenting symptoms of bulimia nervosa were screened medically and psychologically at one of two study centres (Max Planck Institute for Psychiatry, Munich, and Royal Prince Alfred Hospital, Sydney). Of these, 30 (35.3%) were not admitted to the study: eight (26.7%) because they did not meet all the inclusion criteria and the remaining 22, although qualified for entry, because they were unwilling to participate. The reasons for refusal were varied. Some lived too far away from the treatment centres or were not available for the whole of the proposed treatment period. Others were unwilling to accept group treatment and requested either individual or in-patient treatment. A comparison of these 'non-beginners' with the 'beginners' on sociodemographic and physical variables did not reveal significant differences. However, the frequency of bulimic episodes per week was significantly lower in the non-beginners (mean = 6.1, s.d. 3.9) than in the beginners (mean = 13.3, s.d. 10.8) ($t(75) = -3.5, P < 0.001$). Because of their less severe bulimic symptoms, it is possible that the non-beginners were less motivated for treatment.

A total of 55 patients were included in the study. Their mean age was 23.8 years (s.d. 3.8), and their mean duration of bulimic symptoms was 7.5 years (s.d. 3.8). Their current mean BMI was 21.0 (s.d. 1.8), their mean maximum BMI as an adult was 24.4 (s.d. 4.2), and their mean minimum BMI 17.5 (s.d. 2.0). Twenty-two patients (40%) had previously met the criteria for anorexia nervosa. The patients reported a mean frequency of 13.3 (s.d. 10.8) bulimic episodes per week. Vomiting was admitted by 50 patients (90.9%) and abuse of laxatives by 19 (34.5%). The mean frequency of vomiting was 14.8 (s.d. 12.4) episodes per week. At presentation, seven patients (12.7%) had problems with substance abuse. Twenty-nine patients (52.7%) had had previous psychiatric or psychological treatment: seven for anorexia nervosa, 19 for bulimia nervosa and three for depression. In most cases, previous treatment had been either client-centred psychotherapy or some form of behaviour therapy as an out-patient. Nine patients had been admitted to hospital on at least one occasion: six for anorexia nervosa and three for bulimia nervosa. In addition to their in-patient treatment, six of these nine patients had received out-patient therapy. Six (11.0%) of the patients were currently attending high school, 19 (34.5%) were tertiary students, 24 (42.6%) were employees, and 6 (11.0%) unemployed. Twenty-seven (49.1%) were married or had a regular partner in a heterosexual relationship.

Procedure

After the screening examinations, patients were assigned randomly to one of the treatment conditions. Twenty-seven were allocated to the nutritional-management (NM) programme (13 in Munich, 14 in Sydney) and 28 to stress management (SM) (13 in Munich, 15 in Sydney). All patients signed a treatment contract, committing themselves to attend the whole treatment programme, and agreeing to the research procedures and data collection.

At the start of treatment, each patient attended two individual sessions for collection of additional information relevant to assessment and evaluation. At these sessions the rationale of the particular treatment programme was explained. The patients were asked not to weigh themselves at home during the treatment period. The treatment was conducted in groups of five to eight patients and comprised fifteen two-hour evening sessions over a three-month period. The first seven sessions were planned as an intensive phase and were carried out within a three-week period. The remaining eight sessions were conducted on a weekly basis, followed by one week of data collection for post-treatment assessment.

Each of the groups was run by a pair of therapists, one of whom had at least three years of clinical experience with eating disorders. The more experienced therapists were three clinical psychologists (PhD level) and a dietician, and the junior therapists were two PhD candidates in psychology and a research nurse. Detailed manuals for each of the two treatment conditions were followed, and regular supervision sessions were held within each treatment centre. In addition, one of the senior therapists from Sydney visited Munich, and one of the senior Munich therapists visited Sydney, to ensure that the study protocols were being followed correctly and that the treatments were conducted as similarly as possible in the two centres.

The NM and SM programmes had a number of shared and distinguishing features. The shared features included:

(a) Provision of a plausible treatment rationale
(b) Structure of treatment (number and frequency of treatment sessions, group format)
(c) Self-monitoring of eating behaviour for one week before the first group session, after three weeks of treatment, and after the last group session
(d) Provision of information on somatic consequences of bulimic behaviour and purging
(e) Restaurant dinner with the group.

The distinguishing features for NM were:

(a) Detailed information on, and discussion of, metabolic processes, energy requirements, determinants of body weight, and the biological and psychological effects of starvation
(b) Analysis of nutritional diaries with focus on the identification and modification of inadequate dietary patterns
(c) Comment on the stability of weight despite improved eating behaviour
(d) Advice on an adequate eating pattern with respect to quantity, macronutrient composition and timing of meals
(e) Advice on stimulus-control techniques to avoid uncontrolled eating
(f) Advice on meal preparation, cooking and the use of exchange lists
(g) Encouragement to eat feared or binge foods
(h) Educational input to correct misconceptions about specific foods.

SM was distinguished by:

(a) Functional analysis of stressful situations relevant to binge eating
(b) Short-term strategies to alter coping behaviour in stressful situations (e.g. self-encouragement)
(c) Progressive muscle relaxation
(d) Training in problem solving
(e) Training in communication skills and expression of feelings.

Nutritional management

In the initial two individual sessions the patients were told about the theory that their restrained eating behaviour was responsible for their binge eating. The treatment approach and the aims of the programme were explained in detail. The patients were taught to record precise detail of their eating behaviour in structured nutritional diaries. By means of a semistructured interview, detailed information about their present and pre-morbid eating pattern was collected.

In the group sessions, the principal components of treatment were information and education. In addition, some behavioural techniques were advocated such as advice about stimulus control.

Information and education was provided about:

(a) the risks of binge eating and purging to physical health
(b) the ineffectiveness of various purging techniques in controlling weight
(c) the psychological and biological effects of starvation
(d) metabolic processes, energy requirements and determinants of body weight and weight fluctuations.

At each treatment session the therapists focused initially on an analysis of the nutritional diaries, and patients were given feedback on their actual eating patterns. They were weighed, and where appropriate, attention was drawn to the observation that despite eating more regularly they had not gained weight. Meal plans were worked out, based on the initial diet histories and designed to maintain weight at a stable level. Days of structured eating were introduced to ensure that patients had three adequate meals a day with one or two snacks, eaten irrespectively of appetite or hunger feelings and at pre-planned times. The emphasis was on adequate caloric intake, appropriate macronutrient composition with a variety of different foods, and appropriate timing of meals.

Patients were advised to introduce their feared or binge foods into their everyday eating and they were taught to use food-exchange lists for their meal planning to ensure a varied choice of foods. Stimulus control techniques were advocated which included: avoiding eating from large packets, sitting down while eating, avoiding eating in the kitchen, and eating at a moderate pace. Patients were encouraged to eat with others whenever possible and some advice was given on meal preparation and cooking. Although cognitive restructuring was not attempted as a major treatment goal, misconceptions about specific foods, weight control and body shape were discussed and corrected when presented by patients, particularly during the later treatment sessions. These later sessions were also used to reiterate the advice and information previously given, to comment favourably on the patients' improved eating behaviour and thus reinforce its maintenance, and to discuss difficulties with eating which were currently being experienced. At the penultimate session the patients went to dinner in a restaurant with the therapists. At the final session each patient reviewed the strategies she had found most useful during treatment and those which she would apply further to prevent relapse.

Stress management

In the initial two individual sessions, the patients were told about the theory of interpersonal stress causing binge eating. The aims and methods of the treatment programme were then explained in detail. Information on basic principles of functional-behavioural analysis was given and the patients were taught to identify and keep records of stressful situations likely to trigger binge episodes. They were also instructed how to keep a nutritional diary, but were only required to complete it for one week before group treatment commenced, after three weeks of treatment, and after the final group session.

The basis for the group sessions was a standardised treatment programme, specifically designed to improve coping skills in stressful situations (Feldhege & Krauthan, 1978). This programme contains the well-established procedures as described by Meichenbaum (1985) and D'Zurilla (1986). Some of these techniques are similar to those used in the second stage of cognitive-behavioural treatment packages for bulimia nervosa (e.g. Fairburn, 1985; Agras *et al*, 1989).

The initial phase was based on self-monitoring and focused on the identification of stressful situations and internal cues relevant to binge eating. Patients were taught to recognise situational and internal cues which indicate that a situation may become stressful and trigger a binge episode. They were shown short-term and long-term strategies to manage these critical situations and related problems. The short-term strategies included progressive muscle relaxation, self-encouragement and self-distraction. Long-term strategies were training in systematic planning and problem solving, and the improvement of communication skills and expression of feelings. These strategies were illustrated by the use of role playing and were then practised at home.

In the earlier sessions, attention was given mainly to short-term strategies, while in the later sessions more emphasis was placed on the long-term strategies for stress control and their application to various situations. The patients were encouraged to practise the acquired coping behaviours in daily life. Progress was praised and thus reinforced, and difficulties were discussed, often with the further use of role play to illustrate specific problems and their resolution. Cognitive procedures were used to correct dysfunctional thoughts, usually provoking feelings of stress and tension. At the penultimate session the patients went out for a restaurant meal with their therapists. The last session was used to review the most beneficial coping strategies for each patient and to make firm plans for the immediate future to prevent relapse.

A critical difference to the NM condition was that no specific intervention was introduced to alter the restrained eating behaviour. If direct questions about eating were posed by the patients (e.g. how to eat normally), they were dealt with in a generally supportive manner (e.g. it is useful to eat three meals a day), but no individualised meal plan or homework with regard to structured eating was used. Patients were weighed only at times of data collection.

Measures and statistical analysis

Data were collected before treatment, after three weeks of treatment, at the end of treatment, at six-month follow-up and at 12-month follow-up. The patients reported their nutritional intake and episodes of binge eating and vomiting for the week before each assessment. At the two follow-up points, the patients were interviewed to collect additional information.

In Germany, caloric intake and food composition were analysed using a computer program (Kluthe, 1987) based on the nutritional tables of Souci *et al* (1986). In Australia, the food diaries were analysed using the computer program SERVE, based on the nutrient data table for use in Australia (NUTTAB) produced by the Commonwealth Department of Community Services and Health, Nutrition Section, and published by the Australian Government Publishing Service (1988).

As a key measure for the modification of dietary restraint, the amount of normally eaten calories per day was calculated, i.e. calories consumed excluding binges and not vomited. The baseline frequency of binge eating and vomiting was assessed during diagnostic interviews and referred to the last four weeks before assessment. Binge-eating and vomiting frequencies after three weeks of treatment and at post-treatment were based on self-monitoring and referred to the corresponding week. Follow-up frequency ratings were based on interview data and referred to the last four weeks before assessment. A binge was defined as an eating episode that involved definite loss of control over eating and usually meant the consumption of a quantity of food larger than a normal meal. The average quantity of the self-reported binges at pre-treatment calculated from the baseline nutritional diaries was 2020 kcal (s.d. 1300; range 400–18000 kcal).

Standardised questionnaire measures for psychopathology were the Eating Disorders Inventory (EDI; Garner *et al*, 1983), the Eating Attitudes Test (EAT; Garner & Garfinkel, 1979), the Beck Depression Inventory (BDI; Beck *et al*, 1961), and the State-Trait-Anxiety-Inventory (STAI; Spielberger *et al*, 1970).

Three-factor multivariate analysis of variance (MANOVA) for repeated measurements (see O'Brian & Kaiser, 1985, for details) were used to analyse data during treatment and follow-up, respectively. The within-subjects factor was *time*, with two sets of three measurement points (pre-treatment, after 3 weeks, post-treatment; post-treatment, 6-month follow-up, 12-month follow-up). One between-subjects factor was *treatment* (nutritional management v. stress management). A second between-subjects factor, *centre* (Munich v. Sydney), was used in order to control for possible differences between the two treatment settings. The time factor was orthogonally separated into a linear and a quadratic component to examine the temporal pattern of change in the outcome measures. Since the untransformed values for binge frequency and vomiting frequency per week violated the assumption of homogeneity of variance, they were transformed to log values, as proposed by Kirk (1982). Transformation provided equal variance, based on Bartlett-Box F-tests.

To reduce type I error because of multiple testing, the questionnaire data were grouped into two sets of six variables. One set represents the specific psychopathology of eating disorders related to dieting behaviour, binge eating, and concerns about shape and weight (EDI subscales were 'drive for thinness', 'bulimia', 'body dissatisfaction', 'perfectionism', 'interoceptive awareness', and EAT total score). The other reflects more general aspects of psychopathology (EDI subscales were 'maturity fears', 'ineffectiveness', 'interpersonal distrust', BDI score, STAI state score, and STAI trait score). For each of these two sets, a global MANOVA was conducted, involving all variables simultaneously. If a global effect was significant at the 10% level, the corresponding effect was analysed for each variable separately. Differences between treatment conditions in percentage of patients abstinent from bingeing or vomiting were analysed by Fisher's exact test (two-tailed).

Since we were particularly interested in differential effects of treatment, only those subjects who had actually received the complete treatment were included in the primary statistical analyses. These data are reported in detail. In addition, an intention-to-treat analysis was performed, which included the drop-outs with their last available data point. The great majority of patients who dropped out did so within the first two weeks of treatment (six out of seven patients) and their baseline values had to be taken both as their scores after three weeks of treatment and as their final scores. Therefore, this analysis is an extremely conservative statistical approach.

Results

At baseline there were no statistically significant differences between patients in the two treatment conditions with respect to sociodemographic characteristics or outcome variables (P values>0.10). The baseline values for the outcome variables are shown in Table 1. With regard to physical characteristics, current and maximal BMI were not different between treatment groups, but patients in the SM programme had a significantly lower minimum BMI (mean = 16.8, s.d. 2.1) than in the NM (mean = 18.2, s.d. 1.8) ($t(53) = -2.73$, $P<0.01$).

Seven patients (12.7%) dropped out of treatment; two in the SM condition and five in the NM condition. The difference in drop-out rate between treatments was not significant ($P=0.38$). There were also no significant differences between the drop-outs and the completers of treatment at baseline on outcome measures and physical characteristics (all P values>0.10). However, with respect to sociodemographic characteristics drop-outs were significantly less likely to have a sexual partner than completers ($P<0.05$).

Binge eating and vomiting

The data for average weekly frequency of binge eating and vomiting at pre-treatment, after 3 weeks, and at post-treatment are shown in Table 1. The MANOVA for binge frequency revealed a significant main effect of time (linear trend: $F(1,44)=130.6$, $P<0.0001$). Since there was no interaction between treatment and time with respect to the linear trend, the pre–post improvement was similar in both treatment conditions. There was, however, a significant interaction between treatment and time with respect to the quadratic trend ($F(1,44)=5.61$, $P<0.05$). This means that the temporal pattern of improvement was different between

Table 1
Measures of eating behaviour and psychopathology during treatment[1] and follow-up[2]

		Treatment						Follow-up			
		pre-treatment		3 weeks		post-treatment		6 months		12 months	
		mean	(s.d.)	mean	(s.d.)	mean	(s.d.)	mean	(s.d.)	mean	(s d)
Eating behaviour											
Binge frequency	NM[3]	11.8	(10.6)	4.0	(6.5)	3.5	(6.1)	1 7	(3.4)	1 0	(1 9)
(per week)	SM[3]	14.0	(12.0)	9 2	(13.0)	4.2	(7.2)	3.0	(4.5)	2.6	(4 8)
Vomiting frequency	NM	11.3	(8.5)	4.5	(7.3)	3.7	(7 0)	2 2	(4 2)	2 5	(5.2)
(per week)	SM	16.9	(13.9)	10 0	(13.6)	5.5	(8.8)	3 3	(4.5)	3.1	(5 1)
Calories/day[4]	NM	1228	(493)	1821	(664)	1697	(547)	1621	(509)	1703	(589)
	SM	1071	(588)	1299	(545)	1584	(530)	1623	(556)	1639	(649)
Psychopathology											
Drive for thinness	NM	13.8	(4.2)	8.6	(5.2)	7.4	(5.6)	7.1	(5.7)	5.3	(4.6)
(EDI)[5]	SM	12.9	(5.3)	9.1	(3.9)	6.4	(4.7)	5 8	(4.9)	6.2	(6.3)
Bulimia	NM	12.1	(4.6)	5 8	(4.7)	3.6	(4.9)	3.2	(4.1)	3.0	(3 7)
(EDI)	SM	12.2	(4.5)	7 6	(4.9)	4.7	(5.3)	5.1	(5.3)	5.2	(5 6)
Body dissatis-faction (EDI)	NM	16.1	(6.9)	13.4	(7.0)	13.0	(7.3)	12.5	(8.6)	12.3	(7.6)
	SM	15 1	(6.9)	11 3	(5 6)	10.5	(6.6)	10.6	(6.8)	11 4	(6 6)
Perfectionism	NM	8.0	(4.8)	7.6	(4.8)	6.7	(4.2)	6.9	(3.6)	7.6	(4.1)
(EDI)	SM	8.6	(5.1)	6.9	(4.5)	6.5	(5 0)	6 5	(5.0)	5 9	(5 1)
Interoceptive	NM	10.5	(5.3)	6.2	(5.5)	5.3	(5.9)	4.5	(4.7)	3.2	(4.0)
awareness (EDI)	SM	11.9	(6.3)	9.3	(6.2)	6.0	(4.9)	4.5	(4.6)	5.8	(5.7)
EAT[6] total score	NM	51.0	(19.1)	29.9	(20.9)	27.3	(19.3)	24.9	(14.4)	20.6	(18 0)
	SM	51.4	(17.2)	39.7	(15.4)	28.9	(21.6)	21.1	(14.9)	19.2	(16.5)
Ineffectiveness	NM	8.6	(6.0)	7.5	(6.7)	5.8	(6.3)	4.1	(4 8)	2 6	(3 3)
(EDI)	SM	11.7	(6.7)	8.0	(4.7)	5.0	(4.7)	5.2	(6.0)	5.5	(5 1)
Interpersonal	NM	5.4	(4.1)	5 7	(4 5)	5 3	(4 2)	3.5	(3.6)	3.0	(3 1)
distrust (EDI)	SM	5.8	(4.5)	5.6	(4.1)	3.2	(2.9)	3.3	(3.7)	3.0	(2.9)
Maturity fears	NM	4.4	(4.0)	3.8	(4.5)	3.6	(3.8)	3.5	(3.8)	2.1	(2.8)
(EDI)	SM	4.9	(4.8)	2 9	(3.3)	2.8	(3.5)	1.9	(2.4)	3.0	(3 3)
BDI[7]	NM	19.5	(12.6)	13.8	(11.8)	9.3	(9.2)	8.3	(7.2)	5.1	(8.0)
	SM	23.0	(9.5)	12.2	(9.9)	11.8	(12.5)	7.8	(9.5)	8.3	(9.7)
STAI state[8]	NM	49.6	(12.9)	46.2	(14.4)	41.8	(13.8)	43.5	(12.2)	38.9	(12.8)
	SM	52.0	(13.2)	45 8	(13.5)	43.4	(13 2)	42 0	(14.5)	44 2	(16.2)
STAI trait	NM	55.2	(10.5)	50.7	(13.2)	47.2	(12.3)	46.4	(11.9)	44.6	(11 6)
	SM	59.8	(7.4)	52.2	(9.8)	45.4	(11.6)	44.5	(11.5)	45.8	(12 8)

1 $n=22$ for NM, $n=26$ for SM
2 $n=20$ for NM, $n=24$ for SM at 6 months, $n=18$ for NM, $n=24$ for SM at 12 months.
3. NM: nutritional management, SM. stress management.
4. Excluding those consumed during bulimic episodes or vomited.
5 EDI = Eating Disorder Inventory
6 EAT = Eating Attitudes Test.
7 BDI = Beck Depression Inventory
8 STAI = State Trait Anxiety Inventory.

the two treatments. Specifically, after three weeks of treatment, patients in the NM condition showed a more rapid reduction and had a lower mean frequency of binge eating than patients in the SM condition. This differential effect of the treatments is confirmed by examination of the percentage change in the frequency of binge eating. After three weeks, patients in the NM condition showed a mean reduction of 68.4% compared with 31.9% in the SM condition. At post-treatment, each of the two conditions had produced a mean reduction of about 75%. In the intention-to-treat analysis including the drop-outs, the significant statistical effects remained almost unchanged: main effect of time, $F(1,51)=109.1$, $P<0.0001$; treatment × time, $F(1,51)=5.56$, $P<0.05$.

With regard to cessation of bingeing, a trend to a difference between NM and SM was observed not only at

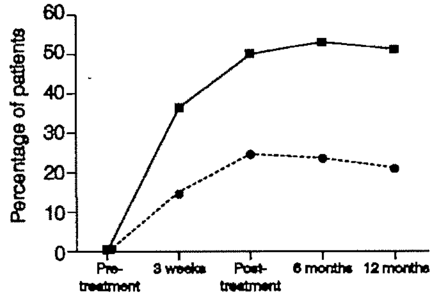

Fig. 1 Patients abstinent (percentage) from bingeing during treatment and at follow-up (■-■ nutritional management; ●- - -● stress management).

the three-week, but also at the post-treatment assessment (see Fig. 1). After three weeks, 36.4% of the patients in the NM condition compared to 15.4% in the SM condition reported abstention from bingeing (Fisher's exact test, 2-tailed: $P=0.09$). Following treatment, the abstinence rates were 50% for NM and 26.9% for SM, respectively ($P=0.08$). In the intention-to-treat analysis, in which the drop-outs were assumed to be all non-abstinent, abstinence rates from bingeing after three weeks were 29.6% in the NM condition and 14.3% in the SM condition ($P=0.16$). Following treatment, the abstinence rates were 40.7% for NM and 25.0% for SM ($P=0.19$).

The mean frequency of vomiting decreased in both treatment conditions from pre-treatment to post-treatment (main effect of time (linear trend): $F(1,44)=112.3$, $P<0.0001$). There were no significant treatment or interaction effects. The mean decline in the frequency of vomiting after three weeks was 64.7% in the NM and 46.4% in the SM condition. Following treatment NM patients showed an average improvement of 73.9%, compared to 76.4% in the SM condition. In the intention-to-treat analysis, the inclusion of the drop-outs in the MANOVA led to similar results with respect to the main effect of time ($F(1,51)=108.6$, $P<0.0001$) and the non-significant treatment effect. For the treatment × time interaction a trend to significance emerged ($F(1,51)=2.93$, $P<0.10$).

Differential effects of treatments were seen with respect to abstention from vomiting. On this relatively strict outcome criterion, patients in the NM condition showed a better outcome. The percentage of patients abstinent from vomiting after three weeks of treatment was higher in the NM (45.5%), than in the SM condition (19.2%) (Fisher's exact test, 2-tailed: $P=0.05$). After treatment, 54.5% of the patients in the NM and 30.8% in the SM condition had ceased vomiting ($P=0.08$). In the intention-to-treat analysis, the inclusion of the dropouts under the assumption of their non-abstinence resulted in abstinence rates of 40.7% for NM as compared to 21.4% for SM after three weeks of treatment ($P=0.12$). After treatment, 48.1% of the NM patients and 32.1% of the SM patients were abstinent from vomiting ($P=0.20$).

Treatment centre had no effect on binge-eating or vomiting frequencies.

Psychopathology

Questionnaire data representing specific psychopathology related to dieting, binge eating and concerns about weight are depicted in Table 1. The overall MANOVA for all six outcome variables simultaneously showed a significant main effect of time ($F(12,33)=9.1$, $P<0.0001$), but no main effects of treatment, centre or their interactions. Analysing each variable separately, significant main effects of time were found for the EDI subscales 'Drive for thinness' (linear trend(LT): $F(1,44)=38.5$, $P<0.0001$), 'Bulimia' (LT: $F(1,44)=105.9$, $P<0.0001$), 'Body dissatisfaction' (LT: $F(1,44)=12.75$, $P<0.001$), 'Perfectionism' (LT: $F(1,44)=11.3$, $P<0.01$), 'Interoceptive awareness' (LT: $F(1,44)=38.5$, $P<0.0001$), and for the EAT total score (LT: $F(1,44)=56.44$, $P<0.0001$). A significant linear, but not a quadratic, trend means that the changes from pre-treatment to three weeks are similar to the changes from three weeks to post-treatment. Additional quadratic trends were found for the EDI subscale 'Bulimia' ($F(1,44)=6.2$, $P<0.05$) and the EAT total score ($F(1,44)=4.7$, $P<0.05$). This effect demonstrates that on each of these measures, patients in both treatments showed most improvement during the first three weeks. The intention-to-treat analysis for this set of questionnaire data revealed similar results. The overall MANOVA was significant for the main effect of time ($F(12,40)=7.0$, $P<0.0001$). The linear trends indicating pre–post improvement remained significant for the five EDI subscales (Drive for thinness: $F(1,51)=65.2$, $P<0.0001$; 'Bulimia': $F(1,51)=84.3$, $P<0.0001$; 'Body dissatisfaction': $F(1,51)=13.2$, $P<0.0001$; 'Perfectionism': $F(1,51)=10.0$, $P<0.01$; 'Interoceptive awareness': $F(1,51)=35.4$, $P<0.0001$) and for the EAT total score ($F(1,51)=53.0$, $P<0.0001$). The same was true for the quadratic trends (EDI 'Bulimia': $F(1,51)=6.1$, $P<0.05$; EAT total score: $F(1,51)=4.5$, $P<0.05$).

The questionnaire data, representing more general psychopathology related to interpersonal maturity, social interaction, depression, and anxiety are shown in Table 1. The global MANOVA for all six variables simultaneously revealed a significant main effect of time ($F(12,33)=4.8$, $P<0.0001$) and the treatment × time interaction ($F(12,33)=1.9$, $P=0.07$). Main effects of centre were not significant. Separate analyses for each variable showed significant main effects of time for the scales 'Ineffectiveness' (LT: $F(1,44)=25.3$, $P<0.0001$), 'Interpersonal distrust' (LT: $F(1,44)=6.41$, $P<0.05$), and 'Maturity fears' (LT: $F(1,44)=6.9$, $P<0.05$). However, the MANOVAs also revealed significant treatment × time interactions with respect to the linear trend for 'Ineffectiveness' ($F(1,44)=4.05$, $P<0.05$) and 'Interpersonal distrust' ($F(1,44)=5.94$, $P<0.05$). These effects indicate that the pre–post change was significantly greater for patients in the SM condition. Patients in both treatments showed a reduction in depression, as was demonstrated by a significant main effect of time for the BDI score (LT: $F(1,44)=37.4$, $P<0.0001$), but no treatment × time interactions. Significant main effects of time were also found for the anxiety measures, STAI state (LT: $F(1,44)=20.3$, $P<0.0001$), and STAI trait (LT: $F(1,44)=46.1$, $P<0.0001$). The pre–post improvement in trait anxiety, however, was significantly greater in the SM condition (treatment × time interaction for linear trend: $F(1,44) = 4.32$, $P < 0.04$). When the drop-outs were included in the intention-to-treat analysis of this set of questionnaire data, the statistically significant effects remained nearly unchanged. The global MANOVA also revealed a main effect of time ($F(12,40) = 4.8$, $P < 0.0001$) as well as a treatment × time interaction ($F(12,40) = 2.0$, $P < 0.05$). The separate analyses for each variable showed main effects of time with respect to the linear trend for the EDI subscales 'Ineffectiveness' ($F(1,51) = 25.0$, $P < 0.0001$), 'Interpersonal distrust' ($F(1,51) = 8.0$, $P < 0.01$), and 'Maturity fears' ($F(1,51) = 6.7$, $P < 0.05$). Treatment × time interactions with respect to their linear trend were confirmed for the EDI subscales 'Ineffectiveness' ($F(1,51) = 4.5$, $P < 0.04$) and 'Interpersonal distrust' ($F(1,51) = 5.2$, $P < 0.05$). Main effects of time remained significant for depression ($F(1,51) = 37.7$, $P < 0.0001$), state anxiety ($F(1,51) = 18.8$, $P < 0.0001$), and trait anxiety ($F(1,51) = 45.4$, $P < 0.0001$), as did the treatment × time interaction for trait anxiety ($F(1,51) = 4.8$, $P < 0.05$).

Caloric intake and weight

The average amount of calories per day which were eaten normally (i.e. not during a binge and not vomited) is given in Table 1. Both treatments resulted in a pre–post increase in caloric intake, as can be concluded from the significant main effect of time in the MANOVA (LT: $F(1,44) = 27.2$, $P < 0.0001$) and the non-significant treatment × time interaction with respect to the linear trend. However, the change occurred more rapidly in the NM condition. The MANOVA revealed a significant treatment × time interaction for the quadratic trend ($F(1,44) = 4.1$, $P < 0.05$). These effects were not altered by the inclusion of the drop-outs in the intention-to-treat analysis (main effect of time: $F(1,51) = 29.4$, $P < 0.0001$; treatment × time $F(1,51) = 4.8$, $P < 0.05$).

According to the MANOVA, weight in terms of BMI did not change significantly during treatment. The mean BMIs for the patients in the NM were 21.2 (s.d. 1.8) at pre-treatment, 21.8 (s.d. 1.7) after three weeks of treatment, and 22.0 (s.d. 1.9) at post-treatment. The corresponding BMIs for the patients in the SM were 20.6 (s.d. 1.9), 20.7 (s.d. 2.5) and 20.7 (s.d. 2.0).

Follow-up

Follow-up data for six and 12 months after termination of therapy were available from 44 (91.7%) and 42 (87.5%), respectively of the 48 patients who had completed treatment.

Eleven patients (five from NM, six from SM) received some further treatment during follow-up. Four patients (two NM, two SM) had received three to six individual therapy sessions, six patients (three NM, three SM) had received six to 20 sessions of some form of supportive psychotherapy or client-centred counselling. One patient had spent two weeks in hospital nine months after the termination of the SM treatment. Although the average frequency of bulimic episodes at post-treatment was not significantly different (t-test: $P = 0.15$) between patients who had received further treatment (mean = 7.1, s.d. 10.2) and those who had not (mean = 2.2, s.d. 3.1), five of the further-treated patients still binged at least daily at post-treatment.

The follow-up data for binge-eating episodes and episodes of vomiting are given in Table 1. A MANOVA for the change in the mean frequency of binge-eating episodes per week from post-treatment over 6–12-month follow-up revealed a significant main effect of time (LT: $F(1,38) = 8.0$, $P < 0.01$), but no significant main effect of treatment or interactions. This means that patients in both treatments showed a further reduction in the frequency of bulimic episodes during follow-up, and that the improvement was similar in both groups. The MANOVA for vomiting frequency during follow-up did not reveal significant effects, as was the case for the amount of normally eaten calories per day.

With regard to abstinence rates, the trend for a better outcome in the NM condition which was observed at post-treatment was maintained throughout follow-up (Fig. 1). Six months after treatment termination, 60% of the NM patients compared to 25% of the SM patients reported abstinence from binge eating (Fisher's exact test, 2-tailed: $P = 0.01$). At 12-month follow-up the abstinence rates were 56% for the NM and 25% for the SM ($P = 0.04$). With regard to vomiting, 50% of the NM patients compared to 29% of the SM patients were abstinent at six-month follow-up ($P = 0.15$). At 12-month follow-up, the abstinence rates were 56% for NM patients and 33% for the SM patients ($P = 0.14$).

The questionnaire scores at follow-up assessment for the scales representing specific psychopathology are depicted in Table 1. For all these measures, the improvement present at post-treatment was sustained 12 months after treatment had terminated. According to the MANOVA, no differences between treatment groups were detected. The same was true for more general psychopathological features, as shown in Table 1.

Weight in terms of BMI did not change significantly during follow-up, nor were there significant differences between groups.

Discussion

This study compared two theoretically based treatment approaches for bulimia nervosa. When interpreting the results, some methodological aspects deserve comment.

The design did not include a waiting-list control group, against which the effects of the active treatments could be directly compared. However, as can be concluded from controlled studies (e.g. Lacey, 1983; Ordman & Kirschenbaum, 1985; Freeman *et al*, 1988; Leitenberg *et al*, 1988; Agras *et al*, 1989), there is no empirical evidence for a significant reduction in bulimic symptoms for waiting-list subjects.

The major outcome variables concern eating behaviour, and these data are based solely on the subjects' self-report. Although biological indicators of binge–purge episodes have been proposed, such as serum amylase levels (Gwirtsman *et al*, 1989), attempts to use this measure in treatment studies have failed (Agras *et al*, 1989). Therefore, at present, self-report with all its potential problems remains the only feasible method of assessing bulimic behaviours.

The treatments were conducted at two different centres with a different socio-cultural background. One might expect that this should have an interfering effect when combining the data. However, as the analysis demonstrated, all the reported treatment effects showed no evidence of influence by the treatment centre.

The patients in this study were similar in their clinical and demographic characteristics to patients in the most recently published treatment studies (e.g. Fairburn *et al*, 1986; Leitenberg *et al*, 1988; Mitchell *et al*, 1990). In particular, they could not be viewed as a mild group in terms of the severity of the bulimic symptoms.

Before treatment, patients receiving the SM programme had a lower minimum or 'lowest ever' BMI than patients in the NM treatment. This difference merits attention, since one study has found 'lowest ever' weight to be related to outcome in terms of abstinence rates from binge eating (Wilson *et al*, 1986). If this relationship had been significant in the present study, outcome differences between the treatment conditions might have been due to *a priori* differences in 'lowest ever' BMI. However, when patients abstinent from bingeing/vomiting at the various assessment points were compared in terms of their minimum BMI to non-abstinent patients, no significant differences were found (all P values >0.20). Similarly, when minimum BMI was introduced as a covariate into the analysis of change for binge/vomiting frequency, no significant effects were seen (P values for the regression coefficients were >0.20). Therefore, in the present study at least, it appears that the 'lowest ever' weight was not a significant predictor of outcome and it seems extremely unlikely that differential effects of treatments can be explained by the group differences in minimum BMI.

The interpretation of the follow-up results may be somewhat confounded by the fact that some of the patients had received additional treatment during the follow-up period. Since the number of patients who received additional treatment was nearly the same in the NM and SM treatment conditions, the outcome differences with respect to abstinence rates are not likely to be due to differences in additional treatment. However, one could argue that the long-term effect of both treatment conditions has been somewhat overestimated, since those patients who received additional treatment may have done worse if they had not been treated. We analysed the follow-up data for those patients who had not received additional treatment separately. The stability in changes in bulimic behaviour and psychopathology was confirmed for this subgroup, as were the differences in abstinence rates between treatments.

With respect to the content of our treatments it is important to stress again that neither the NM nor the SM programme can be equated with current cognitive-behavioural treatment packages, although there are obvious areas of overlap. Behaviour therapy uses intervention techniques based on learning theory and experimental analyses of behaviour. In the NM programme self-monitoring, stimulus control and reinforcement techniques were applied, but otherwise there was little use of specific procedures of behaviour therapy. Similarly, cognitive therapy is concerned with the explicit modification of conscious thinking. Bruch (1978) wrote of her own treatment programme: "psychotherapy is a process during which erroneous assumptions are recognised, defined and challenged so that they can be abandoned" (p. 143). Clearly her therapy contained a cognitive element, but this was not its explicit and primary aim. Similarly, our NM involved attempts to correct misconceptions about eating, food, body shape and weight where these were presented by patients, but the programme was primarily educational and did not set out explicitly to restructure cognitions. Thus, it fell far short of what Fairburn & Cooper (1987) considered as cognitive therapy for bulimia nervosa, which has as its "major goal the modification of these patients' concerns about their shape and weight" (p. 288).

The comparison of nutritional management and stress management revealed a similar effectiveness with respect to the pre–post reduction of bulimic symptoms and specific psychopathology, but also revealed important differences in efficacy when considering the temporal pattern of change in eating behaviour, the final outcome in terms of abstinence rate from bingeing, and aspects of general psychopathology. These effects appeared to be robust and the intention-to-treat analysis, which included the drop-outs, did not lead to substantially different results.

The most important differential effects between NM and SM emerged in the temporal pattern of change in eating behaviour. As intended by the main thrust of NM, these patients showed a more rapid increase in the amount of normally eaten calories than patients in the SM. This greater increase in caloric intake was paralleled by a faster reduction in binge frequency. Therefore, if the rapidity of change in target symptoms is regarded as an important criterion of treatment efficacy (Kadzin & Wilson, 1978), NM appears to be superior to SM. Furthermore, NM demonstrated more effectiveness than SM when a relatively strict outcome criterion is considered, namely the proportion of patients who were free of bulimic episodes. After only three weeks of treatment, 36% of the NM patients were abstinent from binge eating. Abstinence rates at post-treatment and during follow-up were either similar or superior to those reported for cognitive-behavioural treatments or response-prevention programmes (see review of Garner *et al*, 1987; Leitenberg *et al*, 1988; Agras *et al*, 1989). In comparison, the median abstinence rate for the cognitive-behavioural treatments evaluated in the review of Garner *et al* (1987) was 28% at post-treatment. This suggests that NM was not only effective in reducing the frequency of bulimic attacks, but also in completely interrupting the bulimic pattern in many cases.

Patients in the NM also showed pre-post improvement in specific (such as drive for thinness or body dissatisfaction) and general (such as depression) psychopathological features. One interpretation is that these effects are secondary to the treatment's marked effects on everyday eating behaviour. However, it is also possible that other non-specific elements of treatment (such as the group format) had a direct positive effect.

Although the change did not occur as rapidly, at post-treatment patients in the SM condition had also improved their eating behaviour not only with regard to a reduced frequency of binge eating/vomiting, but also with regard to the amount of normally eaten calories per day. While the reduction of binge frequency could be expected when coping skills had improved and stress situations occurred less frequently, the increase in caloric intake would not necessarily be predicted. One might speculate that through the acquisition of a variety of new skills the patients had gained a sense of general control over their lives so that there was no further need to resort to dietary restraint as a control strategy.

The SM program was more effective than NM in changing feelings of ineffectiveness, interpersonal distrust, and anxiety. This could have been expected from the different intervention techniques used. However, it is also an important hint to possible limitations of the NM approach with respect to substantial change in the psychological features that might be relevant for long-term maintenance of improvement in eating behaviour.

Depressive symptoms improved under both treatment conditions. In SM, this could be attributed to some interventions which were similar to those usually used in cognitively orientated therapy of depression (Beck *et al*, 1979). However, the equally positive changes in NM suggest that depressive symptoms in most bulimic patients do not require direct treatment, but improve parallel to improvement in eating behaviour.

Interpreting the results with regard to theoretical aspects, the rapid reduction of binge frequency after the first three weeks in NM accords well with the psychobiological model, which hypothesises an interaction between dietary restraint and binge eating. It may also be concluded that a change in eating behaviour must not necessarily be preceded by cognitive change. This view is supported by recent studies in which treatments that were based on many of the procedures of NM were found effective (Freeman *et al*, 1988; Cooper *et al*, 1989). On the other hand, the significant changes in bulimic behaviour and psychopathology that occurred in the SM condition support the view that stress also plays an important role in producing bulimic behaviour.

When considering the levels of psychopathology at post-treatment, questionnaire scores for the EDI subscales were comparable to the results from other studies using group treatment (Paul & Jacobi, 1986; Mitchell *et al*, 1990), although the values were slightly higher than the mean scores of the normal female sample of Garner *et al* (1983). The final EAT scores in the present sample fell between the 80th and the 90th percentile of the normal female sample of Garner *et al* (1982). They were higher than those Fairburn *et al* (1986) had reported after cognitive-behavioural therapy, but lower than in the studies of Leitenberg *et al* (1988) in their cognitive-behavioural and response-prevention programmes. With regard to depression, the mean BDI scores of our patients were in the non-depressed range (0–13) according to Beck (1967). The post-treatment BDI scores were similar to those in the studies of Leitenberg *et al* (1988) and of Lee & Rush (1986), but somewhat higher than in the studies of Agras *et al* (1989) and Wilson *et al* (1986).

Some tentative but practical recommendations may be derived from this study. Since the interventions used in both treatment programmes were shown to be effective with regard to specific areas, they provide a flexible framework for use in clinical practice and should be combined as dictated by the specific needs of patients. NM aimed at the modification of the restrained eating behaviour should be applied as the initial intervention, and – if the response is favourable – no intensive additional treatment may be required. However, in some cases the NM interventions should be followed by a broader treatment approach, focusing on the specific stress situations that are associated with binge eating. Whether the addition of deliberate attempts to restructure cognitions would confer further benefit remains to be assessed.

A second practical point concerns treatment format. Garner *et al* (1987) concluded in their review that group treatments would produce higher drop-out rates than individual treatments. This was not the case in the present study. Group treatment seemed to be appropriate and cost effective. However, we believe it is important that group size does not exceed eight to ten patients, and that the treatment is structured.

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Neuroendocrine Challenge Studies in Puerperal Psychoses

Dexamethasone Suppression and TRH Stimulation

E. S. PAYKEL, A. MARTIN del CAMPO, W. WHITE and R. HORTON

Subjects admitted to hospital with post-partum psychoses were compared with matched normal post-partum controls using two neuroendocrine challenge tests: dexamethasone suppression of cortisol and TRH stimulation of TSH. Post-dexamethasone cortisol levels were significantly elevated. There were less-clear hints of blunting of TSH response. In the small samples there was no obvious association of abnormalities with any particular diagnoses within the range of mania, psychotic depression and schizoaffective disorders.

Although the increased incidence of severe psychiatric disorder post-partum, and particularly in the first month after childbirth, is well documented (Kendell *et al*, 1987), the nature of the disorders is still argued and the cause for the peak in onset remains uncertain. Nosologically, some authors have argued for a specific disorder or at least a specific colouring of atypical features, while others have suggested that the same typical disorders occur as at other times, with a particularly high frequency of mania.

The most marked problems concern aetiology. Present studies (Martin *et al*, 1989; Brockington *et al*, 1990; Dowlatshahi & Paykel, 1990) do not indicate that social stress is much implicated, in contrast to its prominent role in milder post-natal depression (Paykel *et al*, 1980; Watson *et al*, 1984). Family-history studies show a high loading, but not specifically of post-partum disorders (Protheroe, 1969; Dean *et al*, 1989). The massive hormonal changes which occur after childbirth strongly suggest the importance of biological mechanisms.

However, there have been very few direct studies of biological abnormalities in post-partum psychoses. The key problem has probably been the infrequency of the disorder, 1–2 per 1000 births (Kendell *et al*, 1987). As a consequence, cases are too infrequent for study outside special units, and prospective study during pregnancy is precluded, apart from rare 'high-risk' studies of subsequent pregnancy in subjects who have already had one puerperal psychosis. Biological studies have thus mainly been limited to early post-partum blues and mild subclinical depression, phenomena which may be uninformative for severe disorder.

A biological technique which has been applied very extensively in the last 15 years in the study of psychiatric disorders is the neuroendocrine challenge test. Hormonal response to specific challenge has been used to elucidate the pathophysiological processes taking place at hypothalamic level in psychiatric disorders. Some limited diagnostic specificity in abnormalities has also been found.

We report here a neuroendocrine study of subjects with post-partum psychoses admitted to a mother and baby unit, and of matched post-partum controls. Two neuroendocrine challenge tests that give abnormal results in a proportion of depressive disorders were employed: cortisol suppression to dexamethasone and thyroid-stimulating hormone (TSH) response to thyrotropin-releasing hormone (TRH).

Method

Subjects with post-partum psychoses were patients admitted to a mother and baby in-patient unit at Springfield Hospital, South London. Illnesses were sufficiently severe to require in-patient admission. Criteria required presence of a severe disorder with onset in the first month after delivery, with availability for study during the acute episode and within two months of delivery. Most subjects were studied during the first four weeks post-partum. Subjects with onsets during pregnancy were excluded. Subjects were over 18 years of age and were excluded if suffering from puerperal toxaemia, endocrine disorders, renal or hepatic disease, epilepsy or other central nervous system (CNS) diseases; if taking steroids, anticonvulsants or barbiturates; or if there was a recent history of alcohol abuse. Subjects had not menstruated since delivery and were not breast-feeding at the time of investigation. If breast-feeding ceased on admission, this was without hormonal suppression. Subjects were drug-free for at least one week, except for short-acting benzodiazepines for night sedation in a small number. Most had received no drug treatment at all in the current episode. Diagnoses and other details are given in Table 1.

Controls were normal subjects studied post-partum, delivered at St George's Hospital, Tooting, or at the Rosie Maternity Hospital, Cambridge. Requirements were a normal pregnancy and uncomplicated vaginal delivery, no obvious psychiatric symptoms, and no psychiatric treatment or psychotropic drugs, except night sedation, in the last three months. The criteria applied regarding medical exclusions, drug treatment, menstruation and breast-feeding were the same as for psychiatric subjects. There were two separate samples of controls, one for each neuroendocrine test. Each control was matched with a puerperal psychotic for age, and for the number of weeks post-partum at the time of the test.

Subjects gave informed consent and the studies were approved by the Wandsworth and Cambridge Research Ethical Committees. Puerperal psychotics were studied within a week of admission. Most received both tests, with the TRH stimulation being carried out first, and dexamethasone being administered on the evening of the next day. Each normal post-partum control received only one test; the TRH stimulation tests were carried out in a clinical research laboratory, and the dexamethasone suppression tests in subjects' homes. Plasma was stored at −70° C until assayed.

For TRH stimulation subjects came to the clinical laboratory at 8.15 a.m. and rested. An intravenous cannula was inserted between 8.30 and 9.00 a.m. Baseline samples were taken at 9.00 a.m., 9.15 and 9.30. Following the 9.30 sample, TRH 500 μg was injected. Post-injection samples were taken after 10, 20, 30, 45, 60 and 90 minutes and the cannula was then removed.

TSH was assayed by an enzyme-amplification immunometric assay (Novobiolabs Ltd, Cambridge, UK), using two monoclonal antibodies to hTSH and an enzyme-amplification system (Johannsson *et al*, 1985; Stanley *et al*, 1985) as the label in a microtitre plate format. The performance characteristics of this assay have been reported (Clark & Price, 1986). The method has a detection limit of 0.04 mU/l and a normal reference range of 0.04–4.0 mU/l. Assays were performed in duplicate.

Dexamethasone (1 mg orally) was administered at 8.00 p.m. A 10 ml blood sample was obtained at 3.30 p.m. next day. Cortisol was assayed by radioimmune assay using a commercial kit ('Amerlex', Amersham International UK). Non-suppression was defined as a post-dexamethasone cortisol of 5 μg/dl or more.

Results

Table 1 gives the characteristics of the puerperal psychotics included in the study. Among a total of eleven patients, six had both investigations. Altogether, nine subjects had a TRH stimulation test, and eight a dexamethasone suppression test. Eight were investigated in the first post-partum month, three in the second. Diagnoses were made clinically according to ICD–9. The subjects were actively ill at the time of study. They comprised five schizoaffectives, four manics, and two patients with psychotic depression. In Table 1, schizoaffectives are classified by predominant mood. There were previous histories of puerperal illnesses in subjects 3 and 11, and of a non-puerperal depression in subject 2. Ages were between 20 and 39 years. The patients who underwent TRH tests had mean age of 26.3 years and were investigated a mean of 2.8 weeks after delivery; their individually matched controls had mean age of 29.8 years and were investigated 2.7 weeks (mean) after delivery. For dexamethasone suppression, the corresponding figures for patients were 27.1 years and 3.5 weeks and for controls 27.1 years and 3.7 weeks. None of the differences between patients and controls were significant.

Table 1 (columns 5 and 6) shows post-dexamethasone cortisol levels in patients and controls. There was a systematic tendency for values to be higher in post-partum psychotics than in controls. Because of the differing variances and skewed distributions, significance was tested by the Mann–Whitney *U*-test; the difference was found to be significant. Three of the psychotics and none of the controls had cortisol values above the threshold of 5.0 taken for non-suppression (one-tailed Fisher exact test, $P = 0.10$, NS). Although the highest value was found in a depressive, higher values in psychotics than in controls were not particularly associated with any diagnosis.

Table 1
Details of post-partum psychotics; post-dexamethasone cortisol; and maximal response to TRH

Subject	Age	Weeks post-partum at investigation	Diagnosis	Post-dexamethasone cortisol. μg/dl		δ_{max} TSH· mU/l	
				Psychotics	Controls	Psychotics	Controls
1	33	5.6	Schizomania	6.0	4.6	9.6	10.7
2	29	2	Mania	3.4	1.1	19.0	9.4
3	27	1.5	Mania	5.7	1.1	8.3	11.7
4	21	2	Psychotic depression	12.8	0.6	5.9	10.3
5	24	3	Psychotic depression	2.2	1.1	17.1	17.1
6	20	3	Schizodepression	3.6	0.7	10.2	7.1
7	23	1	Mania	–	–	7.7	11.3
8	27	1	Schizodepression	–	–	6.5	4.2
9	33	6	Schizodepression	–	–	5.4	15.0
10	24	9	Mania	3.3	3.0	–	–
11	39	2	Schizomania	1.9	3.1	–	–
Mean	–	–	–	4.86[1]	1.89	9.96[2]	10.74
s d	–	–	–	3.53	1.47	–	–

1 Mann–Whitney *U*-test (2-tailed), $P = 0.014$.

2 Difference NS (Mann–Whitney *U*-test).

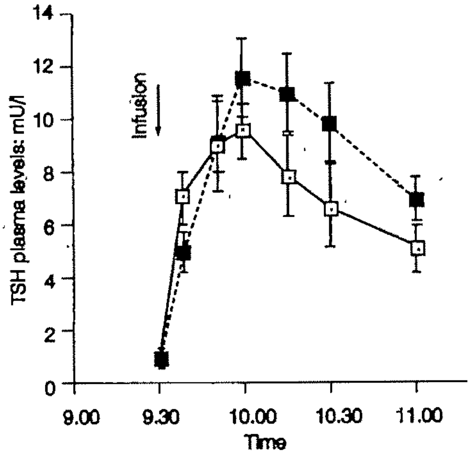

Fig. 1 TRH test ($n = 9$): mean TSH levels (s.e.) in post-partum psychotics (⊡——⊡) and normal controls (■----■). At 10.30, $P = 0.048$ (Mann–Whitney U-test, 2-tailed).

Figure 1 shows mean TSH levels over time in the two samples, and Table 1 (columns 7 and 8) shows individual changes from 9.30 a.m. baseline to peak (δ_{max}). Significance of differences in level at each point and differences in δ_{max} were tested by Mann–Whitney U-test. There were hints of a blunted response among the psychotics, both for δ_{max} and for mean values for 10 a.m. onwards. Only the difference at 10.30 a.m. reached 10% significance or better (2-tailed, $P = 0.048$, Mann–Whitney U-test). Values among the psychotics showed considerable variation, but there did not appear to be any association with particular diagnosis.

Discussion

This study made use of two neuroendocrine challenge tests which have been widely used in psychiatry: dexamethasone suppression of cortisol and TRH stimulation of TSH. We found significantly elevated post-dexamethasone cortisol levels in post-partum psychotics. There were also hints of blunted TSH response to TRH.

The samples were relatively small for both tests. This reflects the need to recruit disturbed post-partum subjects who were drug-free and not breast-feeding, and the need for a special research ward environment while such studies were carried out. The eleven subjects included in this study were derived from a larger sample of admissions to the mother and baby unit with early-onset post-partum psychoses. Some of these could not be studied because of other commitments of the research staff, but apart from this constraint, in no more than half of possible subjects were all criteria met and investigation possible. A simultaneous study of social factors in aetiology (Dowlatshahi & Paykel, 1990) recruited much larger numbers since fewer restrictions applied and patients admitted to another hospital could be included. The samples in the present study were large enough to show significant differences from controls, but larger samples would have been desirable.

One previous study of dexamethasone suppression in post-partum psychoses has been reported. Singh *et al* (1986) carried out the test in small samples of puerperal non-depressive psychotics, puerperal depressives, non-puerperal psychotics and non-puerperal depressives, and in normal women who were five days post-partum. High proportions of puerperal psychotics and puerperal depressives were non-suppressors. This also applied, however, to normal women five days post-partum, but these had mainly reverted to normal when retested 5–24 weeks post-partum. The psychotics in the study were tested at an intermediate point 1–3 weeks after childbirth. The authors concluded, cautiously, that the most likely explanation was a non-specific endocrinological effect in the puerperium. It remains possible, however, that controls matched for time post-partum would have shown fewer non-suppressors. Greenwood & Parker (1984) also found high rates of non-suppression 3–5 days post-partum in normal women. In the present study, tests were all later than the first week, and up to several weeks post-partum; psychotics and controls were closely matched on this variable.

As far as we are aware, there have been no previous studies of the TRH stimulation test in puerperal disorders. Stewart *et al* (1988) reported serum T3 resin uptake, T4 levels, TSH levels, free thyroxine index, and prevalence of thyroid antibodies in psychotic post-partum women. No differences were found between patients and controls, although in the early post-partum period T4 levels in general were higher than normal and T3 resin uptakes lower. In a subgroup analysis, the authors did find lower TSH levels in patients with post-partum major affective disorders than in controls. They also referred to one Swedish study reporting normal thyroid function in seven women with post-partum psychosis (Jansson, 1984). They based their work on a number of reports of transient hyperthyroidism in the first three months post-partum and of hypothyroidism in the next five months, with positive thyroid antibodies, but reversion to a euthyroid state (Amino *et al*, 1976, 1982; Walfish & Chan, 1985; Burrow, 1985; Goldman, 1986; Freeman *et al*, 1986). In the present study, baseline TSH values in psychotics were closely comparable with those of controls.

Interpretation of our findings must be cautious. There are two broad possibilities: the abnormalities may be either causes or consequences of disorder. The first possibility appears the less likely. There are marked changes in hormonal function over the early post-partum period, and these may indeed be causative of psychoses by effects on brain function. However, the most striking changes involve hormonal systems other than the hypothalamic–pituitary–adrenal (HPA) or thyroid axes. Major thyroid or adrenal disorders may be associated with psychotic disturbances, but these involve much more marked disturbances of function than the minor abnormalities found here.

A more plausible explanation is that the abnormalities are consequences or concomitants of psychiatric disorder. Both the abnormalities found have been reported to be associated with depressive and other disorders.

Dexamethasone suppression has been extensively studied and reviewed (Braddock, 1986; American Psychiatric Association, 1987). Non-suppression rates appear highest in depressive disorders with endogenous or melancholic pictures, but non-suppression has been reported in mania (Graham *et al*, 1982; Arana *et al*, 1983) and schizoaffective disorder (Greden *et al*, 1981; Meltzer *et al*, 1982; Katona & Roth, 1985), as well as in chronic schizophrenia (Saffer *et al*, 1985), dementia, alcohol withdrawal and anorexia nervosa (Braddock, 1986). It appears to reflect HPA axis overactivity which is primarily hypothalamic in origin. As is usually the case in such studies, our subjects showed behavioural and sleep disturbance, which may also have contributed.

Blunting of TSH response to TRH has predominantly been studied in depression, and occurs in about 25% of depressives (Extein *et al*, 1984; Loosen, 1988). Blunting has also been reported less consistently in schizophrenia (Wolkin *et al*, 1984), alcoholism (Loosen *et al*, 1979), borderline personality disorder (Garbutt *et al*, 1983), mania (Extein *et al*, 1982) and schizoaffective disorders (Extein *et al*, 1984; Wahby *et al*, 1988). The mechanism responsible for blunting is not clear.

In the present study, diagnoses included psychotic depression, mania, and schizoaffective disorders. Within the limits of the small samples, the abnormalities did not appear specific to diagnosis. The greatest diagnostic interest focuses on the schizoaffective and atypical disorders. The presence of depressive neuroendocrine abnormalities might support the view that these are primarily affective, but there were too few schizoaffectives for any conclusions, and they did not all show the abnormalities. Two out of three schizoaffectives showed higher post-dexamethasone cortisols than their matched controls, and two out of four showed lower $\delta_{\max}$ TSH.

This study has, however, shown that neuroendocrine abnormalities are present in post-partum psychotics compared with normal post-partum controls. It suggests the value of further studies focusing on these abnormalities.

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Point of View

Schizophrenia and Affective Disorder: Are They Genetically Linked?

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The relationship between schizophrenic 'spectrum' disorders and affective illness was studied in the nuclear families of 90 chronic schizophrenic probands. An increased risk of schizophrenia and related disorders was demonstrated among the first-degree relatives of probands with a family history of major affective disorders. Conversely, relatives of probands with a family history of schizophrenic 'spectrum' disorders were at a greater risk of affective illness (major depression) than relatives of probands with no family history. These results lend support to the notion that a subset of affective disorders is associated with the liability to schizophrenia.

Kraepelin's view that schizophrenia and affective illness are discrete disease entities has engendered considerable debate in the psychiatric literature. Opinions vary as to whether these disorders are aetiologically distinct or represent points on a continuum of liability. Evidence from genetic family studies is often used to support diagnostic formulations. When the proband's diagnosis is carefully defined as either schizophrenia or affective disorder, the familial patterns in the relatives of these probands are generally separable. Namely, schizophrenia does not aggregate in families of affectively ill patients nor is there increased incidence of affective disorder in relatives of chronic schizophrenics (Gershon *et al*, 1982; Kendler & Gruenberg, 1984; Weissman *et al*, 1984; Frangos *et al*, 1985; Baron *et al*, 1985*a*; Kendler *et al*, 1985*a*; Andreasen *et al*, 1987).

However, schizoaffective disorder, characterised by symptoms of both schizophrenia and affective illness, challenges the Kraepelinian dichotomy. While categorising schizoaffective disorder into schizophrenia-like and affective (especially bipolar) subtypes creates resemblance in morbid risk to schizophrenia and affective illness, respectively (Baron *et al*, 1982; Kendler *et al*, 1985*b*; Rice *et al*, 1987), this pattern has not been uniformly observed (Angst *et al*, 1979). Moreover, other types of schizoaffective disorder (e.g. 'mixed' or 'chronic') display complex familial patterns involving both schizophrenia and affective illness (Angst *et al*, 1979; Gershon *et al*, 1982, 1988). Finally, although in most studies schizophrenia and affective disorders appear to breed true when probands can be clearly diagnosed as having either disorder, some data show an increased rate of affective disorder (specifically major depression) in relatives of schizophrenic patients (Gershon *et al*, 1988). This research area has been the subject of recent reviews (Crow, 1986, 1990; Gershon *et al*, 1988).

Because familial rates of illness are commonly averaged across relatives, they do not adequately reflect the extent to which different disorders co-vary within families. To cast more light on the binary (two distinct entities) v. unitary (continuum of liability) views of schizophrenia and affective illness, we have re-analysed our previously published data (Baron *et al*, 1985*a*) in relation to two complementary questions:

(a) Is major affective disorder in relatives of schizophrenic patients associated with increased familial risk of schizophrenia and related disorders?

(b) Does high familial loading of schizophrenia and related disorders protect from or predispose to major affective illness in families of schizophrenic patients?

Method

Our selection and diagnostic procedures were described in detail elsewhere (Baron *et al*, 1983, 1985*a*, *b*). Briefly, patients were diagnosed as having chronic schizophrenia according to Research Diagnostic Criteria (RDC; Spitzer *et al*, 1978) and were selected from consecutive admissions to two New York City Hospitals. Patients with a previous history of alcoholism, drug abuse, or medical or neurological disorders were excluded. Informed consent was required of all probands entering the study. First-degree relatives of these probands (196 siblings, 180 parents) were also studied. A small proportion of patients were married (3%), but their children were too young to be considered at risk of schizophrenia, so data on offspring are not reported.

Diagnostic assessments in probands and relatives were based on clinical interviews, medical records, and family history data. The diagnoses were executed by mental health professionals with extensive training in interviewing procedures and diagnostic assessments. The Schedule for Affective Disorders and Schizophrenia (SADS; Endicott & Spitzer, 1978) and the Schedule for Interviewing Borderlines (SIB; Baron & Gruen, 1980; Baron *et al*, 1981*a*) were used for clinical interviews. We supplemented the SADS and the SIB with a few items needed to make diagnoses for DSM–III (American Psychiatric Association,

1980) disorders for which the SADS did not provide adequate coverage. All the probands met DSM-III criteria for schizophrenia. The diagnoses of relatives also followed DSM-III, with one exception; for the diagnosis of probable schizotypal disorder, which does not appear as a separate category in DSM-III, we required two or three DSM-III schizotypal features. The rater reliability data on the various diagnoses have been presented elsewhere (Baron *et al*, 1985*a*).

In this study we present risk data on nuclear families of 90 probands (60 men, 30 women, mean age 25.5 years, s.d. 7.6; mean age at onset of illness 21.3 years, s.d. 6.9). Of the relatives, 85% were available for direct interviews. Information on unavailable relatives was gathered by the family history method, supplemented by medical records when available. In 75% of the cases the interviewer was blind to the relative's kinship status and the psychiatric condition of other family members, including the proband.

Morbidity risks for schizophrenia and 'spectrum' disorders were computed on the basis of the age-at-onset distribution in our sample. Schizotypal personality disorder, probable schizotypal personality disorder, and paranoid personality disorder were considered schizophrenia-related disorders because they aggregate in families of schizophrenic patients (Kendler *et al*, 1981; Baron *et al*,1985*a*). Age adjustment followed the Strömgren method, as previously described (Baron *et al*, 1985*a*). Age-adjusted morbidity risk for major depression was calculated on the basis of our previously reported age-at-onset data on these disorders (Baron *et al*, 1981*b*).

Results

To assess the relationship between schizophrenia spectrum disorders and affective illness, the family data were analysed in two ways. Firstly, we compared the rates of schizophrenia and related disorders in the relatives of schizophrenic patients with and without family history of major affective illness. The distribution of schizophrenia 'spectrum' disorders was reported previously (Baron *et al*, 1985*a*). There was a family history of major affective disorder in 19% of the patients (17/90). Sixteen of these patients had only one affected relative; one patient had two relatives ill with affective illness. As we reported elsewhere (Baron *et al*, 1985*a*), there were 17 cases of major depression and one case of bipolar affective disorder among the relatives. Fourteen of these relatives were women (11 mothers, three sisters); four were men (two fathers, two brothers). There were 11 instances of co-morbidity among these relatives, namely a concomitant diagnosis of a 'spectrum' disorder (none of these cases, however, met criteria for schizophrenia). According to the diagnostic hierarchy employed in our study (Baron *et al*, 1985*a*), a diagnosis of a major disorder (e.g. bipolar disorder or major depression) supersedes the diagnosis of a minor one (e.g. schizotypal or paranoid personality disorder). Thus, all of the relatives who displayed co-morbidity were included in the major affective illness category. There were also four relatives with schizoaffective, mainly schizophrenic (chronic type) disorder. As proposed (Gershon *et al*, 1982; Baron *et al*, 1985*a*), these relatives were included in the schizophrenic category. There were no other major affective disorders (e.g. other types of schizoaffective illness) among the relatives.

Table 1
Schizophrenia and related disorders in relatives of schizophrenic probands with and without family history of major affective disorders

Illness in relatives	Probands with family history ($n=17$)	Probands without family history ($n=73$)	P
Schizophrenia	6 (9.0%)	13 (4.9%)	NS ($\chi^2=1.5$, d.f. 1)
Related disorders^{1}	29 (43.3%)	83 (31.7%)	<0.10 ($\chi^2=3.2$, d.f. 1)
Total 'spectrum'	35 (52.3%)	96 (36.6%)	<0.02 ($\chi^2=5.6$, d.f. 1)
Number at risk^{2}	67	262	

1. Related disorders refer to schizotypal personality disorder, probable schizotypal personality disorder and paranoid personality disorder. The figures refer to the number of relatives in each category, the figures in parentheses are the corresponding morbidity risks.
2. Number at risk is the age-adjusted number of relatives at risk.

Table 2
Major affective disorders in relatives of schizophrenic probands with and without family history of spectrum disorders

		Affective disorder in relatives		
Illness in relatives	No. of families	No. ill	%	No. at risk^{1}
Schizophrenia	12	5	10.4	48
Related disorders	52	10	6.0	168
Total 'spectrum'	64	15	7.0	216
No 'spectrum' disorders	26	3	3.6	84

1. Age-adjusted. The total number of relatives at risk in this analysis ($n=300$) is smaller than the corresponding figure in Table 1 ($n=329$) owing to the different age adjustment for schizophrenia and affective illness.

As shown in Table 1, the relatives of schizophrenic patients with a family history of affective illness had a greater risk of schizophrenia, schizophrenia-related disorders and the total 'spectrum' than the relatives of patients without such a family history; however, the difference reached statistical significance only when the total 'spectrum' was considered. We then analysed the morbidity risk for major affective disorder in the relatives of patients with and without schizophrenia or related 'spectrum' disorders in their families. The relatives of patients with a family history of schizophrenia spectrum disorders were at a greater risk (two- to three-fold) of major affective illness than the relatives of patients without such a family history, but the difference was not statistically significant (Table 2).

Discussion

The morbid-risk data support the notion that a subset of affective disorders is associated with the liability to schizophrenia. The presence of major affective illness in families of schizophrenic patients appears to predispose some relatives to schizophrenic 'spectrum' disorders. Conversely, the occurrence of 'spectrum' disorders in these families is associated with increased familial risk for affective illness. We must note, however, the potential limitations in interpreting these data.

Firstly, although the results are in the expected direction, they have a low level of statistical significance. This observation is worth emphasising, especially since in the overall sample the morbid risk for major affective disorders did not distinguish relatives of patients from relatives of normal controls (Baron *et al*, 1985*a*), nor is it much higher than the general population prevalence (Weissman *et al*, 1984). Larger samples will be required to determine if the trends observed here can be maintained. Secondly, it would be premature to conclude 'genetic' as opposed to other familial associations in this sample. The adoption studies of schizophrenia, a potentially definitive approach to separating genetic from non-genetic influences, did not show an increased familial risk for affective disorder among the biological relatives of schizophrenic adoptees (Kendler *et al*, 1981). Thirdly, our results are greatly dependent on the definition of the schizophrenia 'spectrum'. Schizotypal personality disorder is probably heterogeneous with respect to its purported relatedness to schizophrenia. Some data fail to support its diagnostic specificity (Soloff & Millward, 1983; Squires-Wheeler *et al*, 1989) or point to comorbidity with borderline personality disorder, which, in turn, is thought to be related to the affective 'spectrum' (Gunderson *et al*, 1983; Baron *et al*, 1985*c*).

Genetic and biological studies of psychiatric illness require well defined diagnostic boundaries. As in some earlier reports, the results presented herein argue against an unambiguous separation between schizophrenic and affective spectrum categories. Although twin, family, and adoption studies generally support a distinction between the two 'core' psychiatric disorders, chronic schizophrenia and bipolar affective illness, there is a variety of other disorders which aggregate in the families of probands with either of these diagnoses. These include certain types of schizoaffective and major depressive disorders and, possibly, schizotypal personality traits. To what extent these disease states represent alternative manifestations of the genetic predisposition, whatever the underlying model (i.e. separate major genes for the two 'core' disorders with variable phenotypic expression, or a unitary formulation invoking multifactorial transmission with gradation in psychiatric symptomatology) is unclear. Clearly, there is need for further inquiry involving genetic epidemiological approaches and studies with potential biological correlates and linkage markers to elucidate these issues (Baron, 1991).

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The Current Literature

Enhancement of Recovery from Psychiatric Illness by Methylfolate

ANDREW PROCTER

"41 (33%) of 123 patients with acute psychiatric disorders (DSM III diagnosis of major depression or schizophrenia) had borderline or definite folate deficiency (red-cell folate below 200 μg/l) and took part in a double-blind, placebo-controlled trial of methylfolate, 15 mg daily, for 6 months in addition to standard psychotropic treatment. Among both depressed and schizophrenic patients methylfolate significantly improved clinical and social recovery. The differences in outcome scores between methylfolate and placebo groups became greater with time. These findings add to the evidence implicating disturbances of methylation in the nervous system in the biology of some forms of mental illness."

The summary quoted above is from an article by Godfrey *et al* (1990). Andrew Procter was invited to comment upon the study.

The demonstration by Godfrey *et al* (1990) of significant and substantial effects of concurrent methylfolate treatment in psychiatric patients with borderline folate deficiency differs from many studies in biological psychiatry in that patients with different diagnoses show similar effects. Generally, in biological studies of functional psychiatric illnesses, significant effects are usually observed in subgroups of carefully defined diagnostic groups (e.g. 'psychotic' depression; see Jeste *et al*, 1988, for review). That the same effects of methylfolate-adjunct treatment can be seen in both depression and schizophrenia, long considered distinct disorders, raises the possibility that this finding is being mediated through some non-specific effect on psychological well-being common to both groups of subjects, and independent of the major psychiatric condition. To address this further it may be helpful to consider what the effects of methylfolate are on the psychological function of other subjects with borderline folate deficiency including both patients with other diagnoses and the psychiatrically well. It must surely be expected that given the existing knowledge of the psychological effects of folate deficiency, subjects with any psychiatric illness with co-existing definite or borderline folate deficiency have a better outcome when this is corrected. The rationale for the placebo treatment of such a biochemically proven deficiency must perhaps be questioned.

This study has confirmed previous reports of fairly common folate deficiencies among psychiatric patients (interestingly, these revert to normal on treatment of the psychiatric condition). Furthermore, it has also demonstrated an enhanced response to standard psychiatric treatments in those patients treated with methylfolate. If this is more than merely reversal of a co-existing deficiency as a result of poor diet and self-care, other explanations may be considered. Methylation is a common biochemical step in many metabolic processes, and thus the bioavailability and/or efficacy of both antipsychotic and antidepressant medication may conceivably be affected by the methylfolate treatment.

More speculative is the interpretation that this may indicate similar biochemical abnormalities underlining both schizophrenia and depression, possibly providing some support for a biological basis to the postulated 'unitary psychosis'. Such biological evidence is not entirely without precedent, as has been recently reviewed (Crow, 1990). Monoamine neurotransmitters have, to date, been the subject of the most intensive study in both of these conditions. These transmitters share many features of their metabolism, and thus any treatment affecting the metabolism of one is likely to affect that of others. However, abnormalities of the cerebral cortex have been described in both affective disorders and schizophrenia and it must be remembered that monoaminergic nerve terminals are a small constituent of the cortex. With the development of new drugs and techniques for the study of the major excitatory and inhibitory transmitters of the cortex the position of the monoaminergic theory of affective disorders and dopaminergic theory of schizophrenia must be subject to constant critical review (Procter & Bowen, 1988; Reynolds, 1989).

Independent of these more theoretical considerations of the importance of this study and the light it sheds on the neurobiological nature of psychiatric illnesses, is the fact that one-third of the patients attending a psychiatric unit had borderline–low folate levels and that these patients were significantly improved by the co-administration of methylfolate with their normal psychiatric treatment. These findings should surely warrant the attention of all practising psychiatrists and if confirmed may deserve wider general application.

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Obsessive Slowness Revisited

R. H. RATNASURIYA, I. M. MARKS, D. M. FORSHAW and N. F. S. HYMAS

Of 665 patients referred between 1969 and 1984 for behavioural treatment of obsessive–compulsive disorder, 22 had marked slowness not due to washing, which was secondary to mental or overt rituals or ruminations. Over 90% of the slowness cases were male, and over a quarter had pre-natal or delivery problems.

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In 1974, Rachman described ten in-patients with obsessive slowness which was "a primary dysfunction, not merely a secondary consequence of other difficulties". Soon afterwards, an editorial in the *British Medical Journal* (1974) queried whether the slowness was primary, although three subsequent books did not (Hodgson & Rachman, 1976; Kendell & Zealley, 1983; Marks, 1981). Later, two cases of slowness due to mental checking were described (Bilsbury & Morley, 1979; Bennun, 1980). In a third case of slowness, mental checking or ruminations were not excluded and a fourth case of extreme slowness, who had been called catatonic, disclosed mental checking on abreaction (Clark *et al*, 1982). This pilot study examined some features of obsessive slowness in a series of patients.

Method

A group of 665 in-patients and out-patients with obsessive–compulsive disorder, seen in this unit from 1969 to 1984 with slowness not clearly due to washing or fears of contamination with dirt or germs, had their hospital records examined. These cases should have included Rachman's ten in-patients with 'primary' slowness, but they could not be identified from the case notes, unit records and correspondence with staff who had known them.

Results

Of the 665 patients, 22 had slowness as a significant clinical problem. In all but one of these 22 patients the case notes described definite rituals, ruminations and/or washing that probably accounted for their slowness. The exceptional case was a man who was slow and habitually late without rituals or ruminations; his problem had begun at the age of 12, he was seen as an out-patient at the age of 37; and 13 years later his slowness continued but, as always, did not hamper his life, which his wife confirmed. He had never been an in-patient.

It is striking that 19 of the 21 cases with problem slowness were male and only 2 female. Mean age of onset was 19 years (range 5–37). Six patients (27%) had pre-natal or delivery problems, but only two of these had delayed milestones during development. There was a family history of psychiatric illness in nine patients (41%).

Discussion

This pilot work has the limitations of a retrospective case-note study. Conclusions need verification in prospective work with standardised analysis by interview of mental state and behaviour. Bearing this caveat in mind, careful search of the detailed case notes of 665 patients with obsessive–compulsive disorder (OCD) found no case of slowness as a primary and handicapping problem. Obsessive slowness seemed nearly always due to overt or covert rituals or indecision. Rachman (1974) noted that such patients are "fanatically meticulous. Each task has to be done in the correct manner . . . . Slow motion of the limbs seems to play no part in their slowness". Slow obsessive–compulsives seem to fear and avoid making mistakes or causing disorder. Their excessive orderliness is a ritual although actions within a sequence may not be repeated. If the sequence is disrupted, even near its end, the patient commonly feels compelled to start the entire sequence again and complete it perfectly.

Following the exposure principle, behavioural treatment of obsessive slowness consists of persuading the patient to systematically speed up and take the risk of making mistakes and causing disorder. We have no outcome data, although marked slowness gives the impression of being more difficult to treat than most OCDs. This need not, however, reflect slowness *per se*. It could instead reflect an association of slowness with severity, which predicts fewer gains with exposure therapy (Basoglu *et al*, 1988).

Two points were notable in our cases of marked slowness. First, 27% of our slowness cases had a history of pre-natal or delivery problems, more than is usual in OCD. The second remarkable point is that 92% of our slowness patients were male, whereas OCD as a whole tends to occur about equally in men and women. Males predominated among 16 cases of OCD concerning symmetry and exactness (Rasmussen & Tsuang, 1986). Early-onset cases of OCD predominate among males (Noshirvani *et al*, 1991), but our slowness cases had no particularly early onset, having begun on average at the age of 19, fairly close to the mean onset age of early twenties in most series of OCD (Marks, 1987). It is unclear why there is such a marked male preponderance in slowness cases, nor whether it is relevant that another syndrome in which slowness features – Parkinsonism – is seen slightly more often in men than in women. Parkinsonism tends to start far later than OCD and is associated with obvious pathology in the basal ganglia and substantia nigra, which is uncommon in OCD.

Perhaps the above two points suggest that neural circuits concerned with acting on decisions and completing the ensuing behavioural sequences may be more sensitive to damage in males than in females.

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The Fregoli Syndrome and Puerperal Psychosis

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Four cases of the Fregoli syndrome occurring in the setting of puerperal psychosis are described. They are discussed in relation to previously reported cases and it is proposed that the acute onset of the psychosis and ambivalence arising with childbirth are important factors in the pathogenesis.

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The Fregoli syndrome is a rare psychopathological manifestation first described by Courbon & Fail in 1927. It is usually classified as one of the delusional misidentification syndromes together with the more frequently occurring Capgras syndrome (Capgras & Reboul-Lachaux, 1923), the rarer syndrome of intermetamorphosis (Courbon & Tusques, 1932) and the syndrome of subjective doubles (Christodoulou, 1978). The syndrome derives its title from a famous actor, Fregoli, who had an exceptional ability to change his appearance, and is characterised by the patient identifying a familiar person in various strangers claiming that, although these strangers and his/her familiar person bear no physical resemblance to each other, they are in fact psychologically identical.

Although the original 1927 case occurred in a female patient, Christodoulou (1976), suggests that it is primarily a male manifestation with all patients being psychotic, and in most cases schizophrenia constitutes the nosological setting. There is usually a marked paranoid element with a strong organic component contributing to the pathogenesis.

We report here four cases of the Fregoli syndrome occurring in the setting of puerperal psychosis.

Case 1

SB, a 23-year-old married woman, was admitted three weeks after the birth of her second child. She had a two-week history of depressed mood and insomnia. Mental state examination revealed auditory hallucinations, thought insertion, and passivity. In addition she had the delusional belief that her infant son was really her dead brother-in-law, David, who had returned to 'pay her back' because he knew there was some doubt about the paternity of her first child. This belief was so firmly held that she could not bring herself to feed the child and this persisted throughout her four-week illness, which was further characterised by lability of affect. There was no evidence of cognitive impairment or depersonalisation.

Pre-morbidly she was a cheerful, outgoing and capable person. She had no past history or family history of psychiatric illness. After treatment with chlorpromazine and ECT all her symptoms, including the misidentification of the child, remitted. She was discharged home when a healthy mother–child relationship had been established. She had a brief depressive episode some months later which responded well to amitriptyline, during which there was no evidence of a recurrence of her delusional beliefs.

Her diagnosis, based on Research Diagnostic Criteria, was that of schizoaffective illness.

Case 2

JC, a 30-year-old married woman, was admitted 12 days after the birth of her first child. She had a two-day history of insomnia, overactivity and bizarre behaviour, particularly of an erotic nature. On admission she was disinhibited, elated, with pressure of speech, flight of ideas and delusions of grandeur of a religious nature. She also had the delusional belief that the admitting doctor was her brother-in-law, to whom she expressed her love, addressing him by this man's Christian name. She also stated that she had informed her husband of 'their affair'. She totally lacked insight into her illness. There was no evidence of cognitive impairment or depersonalisation.

Her pre-morbid personality was that of a sociable and capable person with no past history or family history of psychiatric illness. She was treated with chlorpromazine, but after an incident of a sexual nature with a male patient, she was discharged at the insistence of her family. Follow-up was limited and when seen 24 months later she had only recently regained her pre-morbid level of functioning, having become mildly depressed in the interim.

Her diagnosis, based on Research Diagnostic Criteria, was that of manic–depressive psychosis.

Case 3

CH, a 27-year-old married woman, was admitted seven days after the birth of her first child with a three-day history of bizarre behaviour, agitation, insomnia and misidentification of significant people in her surroundings. Mental state examination on admission revealed a dishevelled and agitated lady who was distractible and behaved in a bizarre manner, e.g. sticking tissue paper into her eye. She had a delusional belief that the admitting doctor was her husband. She was disorientated in time. No abnormality was found on physical examination.

Pre-morbidly she was well adjusted, and there was no previous psychiatric history. She had a thyroglossal cyst which had required a number of surgical interventions. There was no family history of psychiatric illness. Investigations including haemoglobin, white cell count, urea and electrolytes, chest X-ray and electroencephalogram were within normal limits. The misidentification of the admitting doctor persisted and, in addition to her husband, he was also misidentified as a doctor in the maternity hospital. Her disorientation in time also persisted and she became withdrawn, disinterested, expressed persecutory ideas and neglected her baby. She was treated with chlorpromazine and made a good recovery, returning home 22 days after admission, and remained well on follow-up.

The diagnosis was that of an unspecified functional psychosis.

Case 4

KK, a 28-year-old woman, was admitted eight days after delivery of her first child, presenting with a three-day history of insomnia, anorexia and a belief that she was infested with 'nits'. Examination on admission revealed a dishevelled appearance, and she constantly looked at her fingers and scratched her hands and scalp. She was perplexed and apprehensive, had persecutory ideas and the delusional belief that she was infested with nits which were crawling on her hands. She also had the delusional belief that various members of staff were actually members of her family. Her cognitive functions were normal.

Pre-morbidly she was a sensitive, shy person who found it difficult to mix with others and had a poor relationship with her parents. When aged 21 she married a 57-year-old man against her parents' wishes. He died four years later following which she had a depressive illness requiring hospital admission. Subsequently, she met and married her present husband who was also much older than she, being 58. There was no family history of psychiatric illness.

Physical examination was uneventful and there was no abnormality on routine investigations, including an electroencephalogram. Both the delusions of infestation and misidentification persisted over the following week, during which the patient was also disorientated in time and place. She was treated with haloperidol and made an excellent recovery before discharge. Follow-up was uneventful except for a mild depressive episode which resolved spontaneously and during which the delusions did not occur.

Based on Research Diagnostic Criteria, her diagnosis was that of an unspecified functional psychosis.

Discussion

Four cases meeting the criteria for delusional misidentification of the Fregoli type have been described. In each, the delusion was clearly present and persisted. They occur in the setting of a puerperal psychosis.

The disorder in Fregoli syndrome is a delusional percept. There is no false perception of the object for the patient admits that the person misidentified does not resemble the familiar person but is nevertheless that person. Berson (1983) and Sims (1986) suggest that there is ambivalence towards the object of misidentification which is important in the pathogenesis of these delusions. This is clearly present in cases one and four and present to some degree in the others. Ambivalence is an understandable reaction to pregnancy and childbirth as it is a time of acquisition of an additional and different identity, of major alterations in role, of emotional instability and of harking back to earlier developmental conflicts (Kumar, 1982). There is a reappraisal of important early relationships particularly with spouses, while at the same time the forming of a new relationship with the child. In these cases there are uncertainties and ambivalences about marital relationships, paternity, relationships with family of origin, with professionals and with the new child. It is unfortunate that the retrospective nature of the analysis of these cases does not allow for a greater understanding of this proposed pathogenic mechanism and whether or not it is present to the same degree in those not manifesting delusions of misidentification.

Although no organic cause was found, it is likely that there is a transient and subtle neurological disturbance. Both perception and associate memory are required for recognition, and the known cases of misidentification contain many individuals with varying degrees of neuropathology (Wilcox, 1986). A study by Joseph (1986) of 29 patients with single or multiple misidentification suggests the possibility of a right hemisphere lesion. Another hypothesis is that these delusions are the result of a disconnection syndrome between the right and left hemisphere cortical areas that decode different sensory information which maintains the normal functions of orientation to person, place, time and object relationship (Joseph, 1986).

Case four is of particular interest as co-existing with the Fregoli syndrome is the delusional belief on the part of the patient that she was infested with nits. This is descriptive of Ekbom's syndrome (Ekbom, 1938) in which the patient believes himself/herself to be infested with small but macroscopic organisms and is again an uncommon psychiatric disorder. McLaughlin & Sims (1984) have described the co-existence of the Capgras and Ekbom syndromes in the setting of paranoid schizophrenia.

In keeping with Christodoulou's findings all our patients had a marked paranoid element. However, the nosological setting is different, one case being manic-depressive, another being schizoaffective and two being unspecified functional psychosis. Triccas *et al* (1985) have also described the Fregoli syndrome occurring in a manic setting. In addition, these cases together with another described by De Pauw *et al* (1987) suggest that it is not necessarily primarily a male manifestation. Although two cases (3 and 4) were disorientated at some stage during their illness giving rise to the consideration of an organic component in the pathogenesis, we found no evidence of a physical causation. All of our cases had an onset within fourteen days of delivery and a possible explanation for this disorientation is offered by Kendell (1988) who proposes that confusion is a feature of illness of unusually sudden onset.

Unusual cases such as described above are stimulating to the clinician because of their colourful expression and the challenge of their enigmatic causation. There are treatment implications too, particularly in light of recent reports in the literature drawing attention to the risk of violence associated with these delusions (e.g. Fishbain, 1988).

To our knowledge, there have been no previous reports of cases of Fregoli's syndrome in puerperal psychosis. Indeed there are few references in the literature to any of the delusions of misidentification occurring in a puerperal illness. A notable exception is Cohn *et al* (1977) who described one case of Capgras syndrome presenting as post-partum psychosis. Our four cases were gathered from a study of early-onset puerperal psychosis in which there were a total of 78 cases, giving a prevalence of 5% which is unusually high for this uncommon disorder. Furthermore, a number of these other cases manifested delusions of misidentification but were too transient to meet satisfactory criteria for their presence.

However, our sample was rather atypical, being cases who had been referred to a Regional Mother and Baby Unit. A prospective study of an unselected sample of women with early-onset puerperal psychosis would be needed to establish the prevalence of the Fregoli syndrome in this condition. If sufficient numbers were to be found, it would provide an opportunity to understand more comprehensively the pathogenic mechanisms.

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Neuroleptic Malignant Syndrome in a Case of Acute Post-traumatic Psychosis

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A patient is described who suffered from an acute post-traumatic psychosis where treatment was complicated by neuroleptic malignant syndrome.

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The neuroleptic malignant syndrome (NMS) is a potentially fatal idiosyncratic complication of neuroleptic use. 'Classic' signs include altered consciousness, muscular rigidity, fever and autonomic dysfunction. However, adopting such narrow criteria may mean missing atypical or incipient cases (e.g. Velamoor *et al*, 1990) and reduce the chance of early detection. This is particularly important when treating organic psychosis with neuroleptics, where symptoms of NMS may be misinterpreted as worsening of the organic psychosis (Price *et al*, 1989).

The patient described below had NMS arising in the setting of an acute post-traumatic psychosis.

Case report

A 57-year-old married farmer sustained a severe closed head injury along with other injuries in a traffic accident on 6 April. He remained comatose for three weeks, during which time he was ventilated for a fortnight. A computerised tomography (CT) scan of his head showed a small, residual haemorrhage in the left frontal lobe.

On 21 May he was transferred to a rehabilitation ward. He was in a wheelchair but beginning to care for himself with much supervision. His level of consciousness was impaired, and he remained disorientated for time and place with poor concentration and short-term memory. His post-traumatic amnesia was described as 'ongoing'.

On 26 May he was noted to be "aggressive and paranoid" and was commenced on haloperidol. Oral doses up to 100 mg per day were used, although his compliance with the tablets was thought to be poor. Blood and urine screen showed no abnormality.

On 29 May he tried to throw himself down a flight of stairs in his wheelchair. He still had a right-sided facial weakness, a resting tremor of his right hand and an upgoing left plantar response, present since his head injury. He appeared dishevelled and frightened. His speech was disjointed, perseverated and whispered. His affect appeared perplexed but shallow. He believed that spies (the nursing staff) were trying to harm him and that the KGB were nearby. He was not hallucinating. Cognitively, he appeared drowsy, and he misinterpreted environmental cues. He showed no insight. A provisional diagnosis of acute post-traumatic psychosis was made and he was transferred to the psychiatric ward.

His paranoid delusions settled over the next ten days on haloperidol (20 mg t.d.s.), carbamazepine (400 mg b.d.s.) and procyclidine (5 mg b.d.s.) (all in syrup form). Carbamazepine blood levels were 39 μmol/l (standard range 20–50 μmol/l). There was no further aggression. On 11 June his regular haloperidol was changed to sulpiride (400 mg b.d.s.) and the procyclidine was stopped. He still received an occasional dose of haloperidol (10 mg).

On 15 June he had further surgery to a leg injury. This was performed under a spinal anaesthetic.

On 28 June he was noted to be more subdued. His vital signs on 30 June showed marked fluctuation, his pulse varying from 80 to 140 beats per minute, his blood pressure from 100/75 to 150/100 mmHg and his temperature peaked at 38.2 °C. By 2 July he was withdrawn, mute and negativistic. He had difficulty swallowing, marked salivation, hyperventilation and bilateral arm rigidity with cogwheeling. His white cell-count was within normal limits (8.6×10^9 per litre) and his serum creatinine phosphokinase (CPK) was mildly elevated at 212 IU/l (normal less than 180 IU/l). Tests of viscosity, electrolytes, renal and liver function were normal, as were chest X-ray and cultures of blood, urine and sputum.

A diagnosis of NMS was thought likely. Neuroleptics were stopped immediately and his carbamazepine withdrawn over three days. He improved slowly. By 10 July his mental state showed evidence only of the original organic brain syndrome with ongoing cognitive impairment. He was discharged to the rehabilitation ward the following week.

Discussion

Acute post-traumatic psychosis and NMS are both uncommon conditions (Moore & Ruesch, 1944; Kellam, 1987). Their occurrence together has not been reported previously.

It would have been easy to miss the development of NMS in this patient by misinterpreting the signs as worsening of his organic psychosis. Fortunately, the episode of NMS was well documented owing to observations instigated for his organic psychosis. The patient met Levenson's (1985) criteria for NMS, but had only a mildly raised CPK. In fact, it has been noted that too much emphasis may have been placed on elevated CPK levels as a diagnostic parameter (Velamoor *et al*, 1990).

The temporal sequence of symptom development in NMS has been reported to be autonomic dysfunction preceding muscular rigidity (Guze & Baxter, 1985). This was the sequence in the patient reported here. The actual onset of his NMS seems clear. At that time he was receiving regular sulpiride and carbamazepine, and an occasional dose of haloperidol. All three drugs have been implicated in NMS (Addonizio *et al*, 1986; Goldwasser *et al*, 1989; Peet & Collier, 1990). However, Shalev & Munitz (1986) felt that 90% of NMS cases arose within 10 days of starting the offending drug. The patient described here had started sulpiride 17 days, carbamazepine 28 days and haloperidol 30 days before the onset of NMS. Thus it is difficult to implicate one particular drug as provoking NMS in this case.

The patient would have been predisposed to NMS, because of his exhaustion and debilitation (Itoh *et al*, 1977), both likely after severe head injury, and the organic brain disease (Shalev & Munitz, 1986).

Early detection of NMS seems to lower mortality (Velamoor *et al*, 1990). However, NMS may go unrecognised because of its variable clinical presentation. In addition, if NMS complicates an organic psychosis then the decision to stop all neuroleptics may be further delayed. Kellam (1987) advocates keeping routine temperature charts and withholding neuroleptic medication if pyrexia occurs, so that the case can be investigated further. Such a simple clinical approach may save lives.

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Rapid-Cycling Manic–Depressive Illness Following Subarachnoid Haemorrhage

M. J. BLACKWELL

The case of a young man who developed a remarkably regular and rapid cyclical affective illness following a subarachnoid haemorrhage is reported. A CT scan showed damage restricted to the brain-stem. The illness proved resistant to a variety of agents; carbamazepine and lithium combined proved effective.

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In Krauthammer & Klerman's (1978) review of secondary mania an association with drugs, infection, neoplasm, epilepsy and metabolic disturbances was suspected. No mention was made of subarachnoid haemorrhage. Storey (1972) in his series of 261 subarachnoid haemorrhage patients found a quarter were depressed and in those with aneurysms brain damage correlated highly with depression. Depression was most common in those with posterior communicating aneurysms. It was felt that the proximity of these to the hypothalamus was significant.

Injury limited to the brain-stem has not been reported in association with manic–depressive syndromes. Lishman (1978), however, describes "disinhibition, indifference, carelessness and fatuous euphoria" in association with diencephalic and brain-stem lesions and "swings of mood and sudden outbursts of violent emotion". Bilateral lesions are characterised by "extreme emotional lability and emotional incontinence". Trimble & Cummings (1981) described two cases of behavioural disturbance following upper brain-stem injuries. The first case developed a largely depressive picture with the emotional lability mentioned above. The second, however, at one stage had a mental state which "fluctuated between hyper- and hypo-activity and a diagnosis of manic–depressive psychosis was entertained", but this eventually evolved into one of flattened affect, disinhibition and empty euphoria.

Case report

Mr T, a 33-year-old, married, professional man suffered a subarachnoid haemorrhage at the age of 28. He had been admitted to a general hospital unconscious with a stiff neck and up-going plantars. A lumbar puncture performed at the time was found to be uniformly blood-stained. He improved overnight, regaining consciousness, but had no memory for the initial event. He was dysarthric with an internuclear ophthalmoplegia, and nystagmus and poor co-ordination to the right. Angiography showed no abnormality and a CT scan showed "a small haematoma partially within the upper brain stem on the right and partially in the brain stem cistern". Bleeding was presumed to have been from a small arterio-venous malformation within the mid-brain. On discharge from hospital he had a minimum degree of nystagmus on the right and co-ordination was much improved. His internuclear ophthalmoplegia had resolved.

Following his subarachnoid haemorrhage his wife reported that he had changed. He became depressed and took an overdose of aspirin two months later. Seven months after his haemorrhage he started to deteriorate, becoming irritable, aggressive and intolerant. "Very rapid mood swings" were reported after antidepressants were started Eventually, he had two admissions to a private psychiatric hospital. His first admission, six weeks in duration, was 13 months after the haemorrhage and he was tried on antidepressants and lithium and then antidepressants and thioridazine and seemed to settle. Ten days after discharge he was readmitted again in a hypomanic state. He eventually settled on carbamazepine (200 mg q.i.d.), thioridazine (100 mg b.d.), fluphenazine (25 mg Modecate every two weeks) and amitriptyline (25 mg at night). At the time of his discharge he was described as still having a "somewhat elevated mood".

There then followed a period of three years during which he continued on carbamazepine but had regular mood swings every two weeks. All his other drugs were stopped without exacerbation and his mood swings were not sufficient to require admission although he reported that they contributed to his losses of his wife and his job. Three and a half years after his subarachnoid haemorrhage he stopped carbamazepine. Three months later he was admitted to our hospital in a hypomanic state. His admission lasted three and a half months and for the first eight weeks his mood switched at exactly two-weekly intervals from one of hypomanic elation to major depression.

During his hypomanic phases he would sleep for less than four hours a night, rush around the ward wearing Union Jack shorts and matching slippers, and talk rapidly and enthusiastically about planned trips to China to see steam engines, interspersing this with puns and jokes. In speech, he frequently moved from subject to subject and was rarely able to hold on to the theme of a conversation. If his good humour were not reciprocated or his plans frustrated he would become irritable, angry and occasionally violent.

His 'down' phases resulted in his taking to bed, virtually mute and ceasing to shave or wash, eating very little and slowly. When asked, he would describe himself as feeling very low, unworthy and helpless. He never seriously contemplated suicide.

Within each phase his mental state was consistent and continuous without lability or sudden outpourings of emotion.

Trials of lithium carbonate achieving blood levels up to 1.1 mEq/ml and carbamazepine, both alone and in combination with neuroleptics, failed to stem his mood swings. The severity of these swings continued to be completely incapacitating for him. Eventually lithium and carbamazepine were tried in combination and almost immediately his mood swings ceased and he became euthymic. Six months later he remained euthymic on lithium and carbamazepine.

Discussion

This illustrates a number of points. Brain damage, apparently affecting the brain-stem alone, may be sufficient to cause a manic–depressive psychosis. Secondly, a rapid-cycling manic–depressive psychosis may be initiated by antidepressants but may continue long after they are stopped. Several authors (Levy *et al*, 1986; Wehr *et al*, 1988; Kukopulos *et al*, 1983) have suggested tricyclic antidepressants as being a precipitating factor in rapid-cycling.

Rapid cycling may have an extraordinarily regular periodicity with the change in mood occurring virtually overnight. It is this regularity and consistency of mood within phase which distinguishes this case from one of 'emotional incontinence'. The combination of lithium and carbamazepine may be more powerful than either of the drugs alone in treating rapid-cycling bipolar affective disorders. Levy *et al* (1986), who reported on eight patients with rapid-cycling mood disorders, successfully controlled two of their patients with a combination of lithium and carbamazepine and in Joyce's (1988) series of 12 rapid cyclers, two would only respond to a combination of lithium and carbamazepine.

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Secondary Mania After Open-Heart Surgery

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A case of mania following open-heart surgery is reported and discussed, with reference to the concept of secondary mania and the psychiatric consequences of open-heart surgery.

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Secondary mania is a recognised clinical concept. Krauthammer & Klerman (1978) described the diagnostic criteria and gave a list of organic causes, such as drugs, infection, epilepsy, cerebral neoplasm and metabolic disturbances, which were illustrated by case reports. Since then other causes have been identified, including cerebrovascular disorders (e.g. Cummings & Mendez, 1984), head injury (Whitlock, 1982), and cerebral anoxia (Kumar & Agarwal, 1988).

Despite advances in surgical technique, cerebral disorders following cardiac surgery remain common. The incidence of cerebral damage after open-heart surgery varies widely from 37% (Sotaniemi, 1980) at one year follow-up, to 61% (Shaw *et al*, 1985) in a study which documented even minor, asymptomatic neurological abnormalities. However, serious neurological complications are uncommon and most problems clear up within a few months. There are fewer studies on the rate of psychiatric complications after open-heart surgery, but it appears to be between 16% after coronary artery bypass surgery (CABS) and 41% following cardiac valvular surgery (CVS) (e.g. Rabiner *et al*, 1975).

Although open-heart surgery is now much more common and more sophisticated, its psychiatric complications remain a neglected area in the literature, and there is a special need for detailed follow-up studies (Mayou, 1986). Previously described psychiatric complications include delirium, acute brain syndrome, post-operative psychosis, paranoid reaction, hallucinosis, depression and dysphoric reaction. This is the first report of secondary mania following open-heart surgery.

Case report

A 54-year-old, married, male electrician underwent open-heart surgery consisting of a triple cardiac artery bypass graft and an aortic valve replacement. The immediate post-operative period was uneventful, but a fortnight after his discharge from hospital his wife noted a radical change in his personality and behaviour. He had been a placid and easy-going man, but after returning he was argumentative and tactless. He slept little, became restless, overactive, impulsive and started overspending. He went for excessively long walks and even tackled several major building projects at home. People noticed that he talked very fast and was difficult to interrupt. He even alienated some of his family and friends because of his tactless comments. His wife thought he had become irrational in his behaviour, and he would misinterpret minor remarks. His mood was elated and he said that he felt fantastic. After three months his wife contacted the general practitioner who arranged a home visit as a result of which he was admitted to the psychiatric unit. There was no family history of psychiatric illness. He had been happily married for thirty years and had two married daughters. He had no previous history of psychiatric disorder or drug or alcohol abuse, but he was a heavy smoker.

As a child he had suffered from rheumatic heart disease but had not been debilitated by it. In August 1988, he had a transient ischaemic attack resulting in aphasia for several minutes but he did not consult his doctor. However, in October 1988, he suffered a right cerebrovascular accident. He had a transient left facial palsy, left hemianopia, left hemiparesis and dysphasia. After three days in hospital he had fully recovered, but during the admission a diagnosis of critical aortic sclerosis was made. A subsequent angiogram revealed triple vessel disease. Two months later he had open-heart surgery and post-operatively, because of his artificial valve, he was prescribed warfarin.

On admission to the psychiatric ward his physical examination was unremarkable, and a comprehensive neurological assessment showed no abnormality. No primitive reflexes or signs of his previous stroke were elicited. His mental state showed increased psychomotor activity but he was co-operative and of smart appearance. His talk was fast, but there was no pressure of speech or flight of ideas. He said "I feel fantastic" and his mood was euphoric. There were no delusions or perceptual disorders. He appeared distractible but, on testing, his memory, orientation and concentration were normal. Further cognitive assessment was not abnormal. He scored 29 out of 30 on the Mini Mental State Examination, and specific tests of frontal and parietal function showed no impairment. Computerised tomography showed an old infarct in the right parietal region. No lesion was seen in either frontal region.

While in hospital he was observed to be overactive, disinhibited and elated. He tended to interfere with the other patients and he was tactless and lacking in judgement. He was treated with haloperidol and carbamazepine. After five weeks he was considerably better and was discharged. When seen with his wife at the follow-up appointment four weeks later he was much improved. His level of activity and rate of talk were near to normal, although he remained slightly elated. His wife reported that he was now able to get on well with family and friends, particularly because he was less irritable and tactless.

Discussion

This patient's manic symptoms began soon after his open-heart surgery and fulfil the criteria for a diagnosis of secondary mania as described by Krauthammer & Klerman (1978):

(1) duration of at least a week
(2) elated and/or irritable mood
(3) two or more of the following behaviours: hyperactivity, pressure of speech, flight of ideas, grandiosity, decreased sleep, distractibility and lack of judgement.

In our patient, the manic symptoms had gone on for longer than a week and included elated mood, distractibility, lack of judgement, hyperactivity and decreased sleep. The exclusion criteria of a clear previous history of affective disorder or any symptomatology of confusional states were not met. The DSM-III-R diagnostic criteria for organic mood syndrome were also fulfilled (American Psychiatric Association, 1987).

Secondary mania following major surgery appears to be rare. Although a study by Bass (1984) mentions one patient who developed mania after coronary artery bypass graft surgery (rather than open-heart surgery), the patient had a previous history of affective disorder and so it could not be called secondary mania. Krauthammer & Klerman (1978) reported a case of post-operative mania after hystero-oophorectomy in a 43-year-old woman, but their patient initially had a post-operative delirium lasting 16 days. Resolution of the delirium was followed by a classic mania lasting six months. In our case the post-operative period was largely uneventful.

In view of the various mechanisms for cerebral damage during open-heart surgery (i.e. using extracorporeal circulation) such as macroembolism, microembolism and cerebral hypoperfusion (Shaw *et al*, 1985), it is not surprising that the very nature of this procedure leads to a high incidence of cerebral damage. However, in their study, Shaw *et al* (1985) found that most patients with post-operative neurological disorders had had routine and uncomplicated operations. Sotaniemi (1980), in a thorough prospective study, found that a pre-operative history of a cerebrovascular accident (CVA) almost doubled the risk of cerebral damage as a consequence of open-heart surgery to 66.7% and that in the majority of cases, clinical signs were indicative of a right hemisphere lesion. Our patient had sustained a right-sided CVA two months before undergoing cardiac surgery. In accordance with Sotaniemi's findings, it is likely that he developed additional cerebral damage, which may even have been right sided, as a complication of his operation.

Rabiner *et al* (1975) speculated that the lower incidence of psychiatric complications which they reported was due to differing personality types of patients undergoing the different surgical procedures. Those undergoing coronary artery bypass surgery had arteriosclerotic disease and tended to be hard-driving and competitive individuals, whereas most patients undergoing cardiac valvular surgery had rheumatic heart disease, and had had enforced inactivity in childhood. The latter group were said to be passive and uncompetitive and it was argued that this made them more vulnerable to post-operative psychiatric problems. This view remains unsubstantiated as Rabiner *et al* did not compare personality types in the study itself. Although our patient had a placid personality, his childhood heart disease had not been sufficiently severe to restrict his activities and, as we described, the influence of personality is not substantiated.

Mania secondary to cerebrovascular lesions has been widely reported in the literature. One of the patients described by Cummings & Mendez (1984) developed secondary mania after a stroke which had occurred six days after discharge following coronary artery graft surgery. Most focal vascular lesions associated with secondary mania appear to be on the right side (Cummings & Mendez, 1984; Starkstein *et al*, 1988; Robinson *et al*, 1988). In a study of nine patients with post-stroke mania, eight had lesions which were exclusively in the right hemisphere (Starkstein & Robinson, 1989). Therefore, in our patient, the previous stroke resulting in a right-sided parietal lesion, which was confirmed by CT scan, was most likely to be a significant predisposing factor for his secondary mania.

In our patient, secondary mania developed after open-heart surgery. The high incidence of psychiatric and cerebral disorders following open-heart surgery makes it an area which demands further study, particularly since there may be predisposing factors which dramatically increase the risk of such complications. Future research may help predict the likelihood and nature of any psychiatric complications before the patient undergoes surgery.

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An Unusual Monosymptomatic Hypochondriacal Delusion Presenting as Self-insertion of a Foreign Body into the Urethra

GARRY WALTER

The case of a middle-aged man who inserted a knitting needle into his urethra is described. This behaviour was associated with a monosymptomatic hypochondriacal delusion. The causes of such behaviour are discussed, together with the nosological status of monosymptomatic hypochondriacal psychosis.

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Self-insertion of foreign bodies into the urethra is commonly reported in urological practice (e.g. Vilman *et al*, 1985) but has rarely been discussed in the psychiatric literature (e.g. Rada & James, 1982). A case is described in which urethral self-insertion was associated with an unusual monosymptomatic hypochondriacal delusion.

Case report

A 55-year-old retired electrician presented to an emergency department after inserting a knitting needle into his urethra, which had resulted in pain and haematuria. The patient had been attempting to correct a perceived urethral stricture. He could not explain why he believed he had a stricture. There had been no urinary symptoms before his instrumentation and no change in micturition. The patient did not believe the stricture was cancerous or progressive. The self-insertion had been carried out in a clear sensorium and the patient denied using psychoactive compounds. No erotic gratification was apparently gained from the procedure. There had been no recent mood disturbance.

He had had two other episodes of self-insertion. The first had occurred eight years before, following a haemorrhoidectomy. The patient had again been preoccupied with having a urethral stricture despite no change in micturition. He underwent cystoscopy and removal of a urethral clot. Despite assurance that there was no stricture, the preoccupation continued. The patient began to feel increasingly agitated, depressed and suicidal. There were no other neurovegetative features of depression. He was referred to a psychiatrist and commenced on amitriptyline (150 mg/day). The preoccupation and altered mood state settled within four weeks. The patient remained well until four years later when he again believed he had a urethral stricture which he attempted to overcome with a knitting needle. Cystoscopic examination was normal. Amitriptyline (200 mg/day) was recommenced. The patient discontinued his medication when he began to improve after four weeks and he remained asymptomatic until the present episode.

There had been no other formal psychiatric history and no family history of major psychiatric illness.

The patient recounted a happy childhood. He had been particularly close to his mother with whom he had lived until her death 13 years before. His father, a woodcutter, had been less available but was also described as devoted and caring. The patient's adolescent years were difficult. His father died when he was 13 and he subsequently developed severe acne. He was taunted at school about this. His facial appearance had deterred him from entering into heterosexual relationships until his mid-twenties. He described three brief heterosexual relationships from the age of 25 to 45, all of which had been consummated. His core gender identity, gender role behaviour and sexual orientation were male heterosexual. He described conventional masturbatory practices and denied deviant sexual activity or fantasy. The patient described pre-morbid obsessional and anxious traits.

On admission, the patient was an athletic-looking man with greasy skin and acne scars. He was agitated, avoided eye contact during interview, and spoke with a stutter. He said he felt ashamed of what he had done but had felt powerless over this. He was keen for urological reassessment of his 'stricture'. The patient's other major theme concerned his strong identification with his mother. He acknowledged the feminine implications of both the act of urethral self-insertion and his choice of implement. There were no psychotic features except the preoccupation with a stricture, and no passivity phenomena. The patient was orientated in time, place and person. Clinical cognitive testing revealed no other abnormality.

The patient had cystoscopic examination and cauterisation of a bleeding vessel. There was again no evidence of a urethral stricture. Amitriptyline (200 mg/day) was reintroduced. The patient began to improve after three weeks.

Discussion

Self-insertion of foreign bodies into the urethra may be carried out for a variety of reasons. These include curiosity (especially in children), eroticism, the attempt to cure impotence, to overcome symptomatic urinary obstruction, to relieve tension, or more bizarrely, to administer illict drugs or commit suicide. There has also been an account (Zafrullah, 1969) of urethral self-insertion in recurrent, non-delusional depression.

It is recognised that our patient may have been reluctant to disclose an erotic element in his activity.

However, on the basis of the history, the preferred differential diagnoses are monosymptomatic hypochondriacal psychosis (MHP) and a recurrent depressive illness with a mood-congruent delusional component. The diagnosis of MHP is made on traditional grounds (Munro & Chmara, 1982), on the basis of our patient having single hypochondriacal delusion which preceded, and was not always attended by, an affective disturbance. A primary diagnosis of depression is supported by the episodic nature of the patient's illness and the response to antidepressants. It is acknowledged that, at times, these two disorders may have coexisted and there may have been transposition from one form of illness to another.

It is perhaps not surprising that a more definitive diagnosis cannot be made in the present case. Since Riding & Munro (1975) first conferred unique nosological status upon MHP, viewing it as a subtype of paranoia, there has been considerable uncertainty about the validity of this position. It has been found (Munro & Pollock, 1981) that MHP may progress to better-recognised clinical categories such as schizophrenia. De Leon (1989), drawing upon the work of Pryse-Phillips (1971) and Hopkinson (1973), has argued that MHP may simply represent the expression of several types of underlying psychopathology. De Leon states that MHP is difficult to demarcate from other conditions. The current report adds to mounting evidence that the distinction between MHP and depression, for example, is particularly blurred. This evidence can now be summarised as follows:

(a) depressive symptoms are common in MHP (Chiu *et al*, 1990), occurring both before and after the onset of the delusion and, importantly, before the commencement of pimozide
(b) MHP may be associated with a family history of affective disorder (Andreasen & Bardach, 1977)
(c) untreated MHP often terminates in suicide (Bebbington, 1976)
(d) some patients with MHP improve on a combination of tricyclic antidepressants and phenothiazines (e.g. Malasi *et al*, 1990) or on antidepressants alone (e.g. Fernando, 1988).

The response of non-delusional monosymptomatic disorders to serotonin-uptake inhibitor antidepressants (e.g. Swedo *et al*, 1989) is also of relevance.

It is evident from this discussion that it may be necessary to revise the standard pharmacotherapeutic approach to the patient with a monosymptomatic hypochondriacal delusion. Pimozide is generally considered to be the drug of choice for MHP (e.g. Riding & Munro, 1975) (in open trials depot neuroleptics and haloperidol have also been beneficial). The present case and the above accounts suggest that tricyclic antidepressants may be indicated, alone or in combination with antipsychotic agents, when a monosymptomatic hypochondriacal delusion occurs episodically, when there is a prominent affective component in the history, when antidepressants have been efficacious previously in a patient, or when pimozide is contraindicated, ineffective or unavailable.

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Delusion of Pregnancy in Schizophrenia

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A case is described of a delusion of pregnancy in a 32-year-old schizophrenic Indian woman following loss of a baby daughter and rejection by her husband, who also denied her access to her son.

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Pseudocyesis has been described under a variety of nosological categories (Cohen, 1982) but it is important to distinguish pseudocyesis from delusional pregnancy or pseudopregnancy (Hardwick & Fitzpatrick, 1981). Several authors have reported on the psychodynamics of pseudocyesis (Brown & Barglow, 1971; Lapido, 1979). Harwick & Fitzpatrick (1981) have outlined a psychotherapeutic technique used in pseudocyesis and Taylor & Kreeger (1987) have attempted to synthesise the psychodynamic formulation with a biological substrate.

The literature on delusions of pregnancy in schizophrenia is however scanty, with authors like Cramer (1971) reporting on a 15-year-old girl who developed a delusion of pregnancy following chlorpromazine-induced galactorrhoea.

Many of the psychodynamic postulates offered for pseudocyesis could very well serve as a basis for the understanding of a delusion of pregnancy in a schizophrenic. This is outlined in the case report given below.

Case report

Mrs A, a 32-year-old electronics engineer, diagnosed as schizophrenic in 1980, has been attending our rehabilitation centre for one and half years. The eldest of four siblings, she was described by her father as being shy, but very obedient and hard working. She was academically bright and remained among the top ten of her class throughout her school years. She enrolled in an engineering college and secured admission into the sought-after electronics course. She completed the course in the allotted five-year period, remaining consistently in the top half of the class. In her final year she fell in love with a classmate but due to the rigid caste structure prevailing in India, was denied permission by her family to marry him. Soon after she was married to a man chosen by her family.

She had her first psychotic breakdown in 1980, two days after her marriage, during which time she exhibited florid delusions and hallucinations. She remitted on treatment and continued medication for one year. On becoming pregnant she discontinued medication, and relapsed soon after delivering a male child. The boy is now eight years old. Relations with her husband became progressively strained, both on account of her psychotic behaviour and because her husband abused alcohol and appeared to be uncaring about the patient.

Four years ago she gave birth to a female child which died immediately of unknown causes. The patient underwent a tubal ligation three days after the delivery and relapsed soon afterwards. Since then, her husband has refused to take her back and she is denied access to her son. She lives with her parents and periodically expresses her wish to be reunited with her husband and son.

The patient belongs to a middle-class family and her siblings are well educated and settled. The patient's mother is also a chronic schizophrenic who is extremely withdrawn and deteriorated. The patient's siblings view both the patient and their mother as a burden and are very pessimistic about the recovery chances of the patient due to their experience with their mother. The patient's father and siblings say they are duty bound to provide financial support for the patient's mother but are not inclined to extend similar support to the patient.

They frequently point out that, as a married woman, the patient's place is with her husband (who has consistently refused to support her or take her back), especially since she fell ill only after her marriage. The father and siblings are attempting to emigrate to a Western country for better prospects and the patient has frequently discussed with her psychiatrist her fears about being placed in a permanent residential facility after her family migrates.

A routine mental status examination done in January 1988 revealed occasional auditory hallucinations and marked features of depression. The patient was put on a combination of neuroleptics and antidepressants and remained stable for a period of six months, after which it was noticed that she had developed a persistent amenorrhoea and galactorrhoea and as she appeared a little perturbed about it, she was informed that it was only a side-effect of the drugs.

In January 1989, she was assessed using the Present State Examination (Wing *et al*, 1974) for entry into a research project. During the interview she revealed a well-systematised delusion of pregnancy. In response to the specific question on pregnancy she answered that she had two babies in her abdomen and went on to demonstrate the head and limbs of the male child which she referred to by the name of her son. She also pointed out a female child within her abdomen, of which she could only feel the 'brain'. She was convinced that she could feel the foetal movements and mentioned that the children spoke to her often, the male child usually comforting her and sometimes scolding her. She had no explanations for how she had deduced the sex of the children and when asked to account for the flatness of her abdomen, she mentioned that her abdomen had remained flat even during her earlier pregnancies. She demonstrated her galactorrhoea as proof that she was getting ready to feed the children.

Discussion

By definition, delusions are false ideas that cannot be corrected by reasoning. Delusions can also be regarded as a mode of adaptation to stress and may serve a metaphorical or allegorical function in which the patient portrays her problems and experiences. Usually this aspect of a delusion is often disregarded in the context of its apparent illogicality. In this patient, the wish-fulfilling function of the delusion is clear. The patient wants to satisfy her husband and be reunited with him at any cost, and the only apparent means of doing so is through giving birth to a female child which would complete the family. Deutsch (1945) has also pointed out that a pregnancy could be used to magically avoid being abandoned and helpless. Living with a family that does not want her, and faced with the prospect of being kept in a permanent residential facility if her husband does not take her back, the delusional elaboration probably serves as a source of comfort to her, helping her to believe that her husband will take her back. The defensive, restitutive function of this delusion is obvious in the face of the extreme insecurity being faced by the patient. Similar observations have been made in pseudocyesis by Barglow & Brown (1970).

While loss of love, loss of a love object or of fertility are postulated to operate in the development of pseudocyesis (Lapido, 1979) similar mechanisms can be seen in the development of a delusion of pregnancy. In this case, the patient had introjected the lost love object (namely her son) and because she has lived with him for some time she has introjected a fully formed child and is able to feel all his foetal parts. Since the patient never saw her female child she has introjected only a part of the child and consequently is able to feel only the brain of this child. Deutsch (1945) mentioned that patients could also have an extreme ambivalence about pregnancy, fearing it and desiring it simultaneously. This is probably manifest in this case by the voices of the male child, alternately scolding her and comforting. The patient is also likely to view her husband ambivalently wanting to go back to him as he represents security, but disliking him simultaneously because of his alcohol abuse and indifference towards her.

The co-occurrence of neuroleptic-induced amenorrhoea and galactorrhoea could have triggered off the delusional formation and served to strengthen the patient's beliefs.

One more interesting facet of this delusion is that while it appears to be fully elaborated and systematised, routine questions assessing mental state failed to elicit it, and it was revealed only when a full Present State Examination was performed. Whether keeping this delusion 'secret' was in itself a source of comfort to the patient, or whether it was her conservative background which forbade spontaneous discussions on sexuality, is a matter of conjecture. It underscores the importance of specific questioning to bring to light delusions pertaining to sex and pregnancy.

In India the function of child bearing and child rearing is often regarded as the woman's primary duty. A delusional elaboration may very well serve a wish-fulfilling function in schizophrenics who are denied this role. This association remains to be explored.

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Spousal Allegations of Incest During Transient Psychotic Episodes

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Two patients with transient psychotic episodes made false allegations of sexual abuse concerning their spouses. In both cases, these charges were withdrawn by the individuals upon resolution of the psychosis.

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False allegations of child sexual abuse are relatively rare but they do occur (e.g. Goodwin, 1989), and psychiatrists are routinely called upon to determine whether or not the charges are true (Green, 1986). False allegations have been associated with a variety of factors (e.g. James, 1989). One which has gained considerable attention is that of custody and access disputes (Awad, 1987; Nicholson & Bulkley, 1988), for this situation has been demonstrated to increase the rate of false accusations (e.g. Jones & Seig, 1988). In contrast, little has been written concerning the issue of false allegations made by an adult with a serious psychiatric disorder. While a small number of cases have appeared in the literature (e.g. Macdonald, 1971; Goodwin *et al*, 1978; Green, 1986), few have documented detailed information regarding precise diagnosis, treatment interventions and outcome. It would appear, however, that charges arising solely from the presence of a severe psychiatric disorder are only infrequently associated with psychotic symptoms.

We present two cases involving false allegations of child sexual abuse by individuals who were psychotic at the time the charges were made. Both experienced transient psychotic episodes and withdrew the allegations when the psychosis resolved.

Case reports

Case 1

Ms A is a 42-year-old divorced Jamaican woman currently employed as a nurse. A paternal aunt was described as 'mentally ill' although a precise diagnosis was unclear.

Ms A's first psychiatric contact was for a post-partum psychosis at the age of 21 following the birth of a child out of wedlock. She was admitted to hospital for three months and symptoms resolved completely with neuroleptic therapy. She required no follow-up, and remained well for the next seven years. During this period, she emigrated to Canada, worked full time, and married. She gave birth to another child but experienced no psychiatric difficulties on this occasion.

Marital conflicts during the first six years led her to seek individual psychiatric help, and over the next four years she was seen in regular psychotherapy. During the treatment she experienced transient psychotic episodes, often related to identified stresses in the marriage. During these she would have paranoid delusions involving her husband, as well as auditory and visual hallucinations. Significant affective changes were lacking, and she refused medication. Episodes lasted one to four weeks and resolved spontaneously.

Two years into treatment she decided to file for divorce. The decision was mutual and amicable, including arrangements regarding the child, who was to continue living with her, and visitation rights. However, during the divorce proceedings she became psychotic over a three-week period. For the first time, she made accusations to her lawyer that her estranged husband was sexually abusing the daughter. Ms A herself gave no history of sexual abuse. An investigation, including evaluation of the child, failed to support the charges. At the same time, her psychosis began to resolve and she withdrew the child from any further assessments. She discontinued further discussions concerning this topic with her lawyer, and expressed doubts about the validity of the allegations to her psychiatrist. Another psychotic episode occurred before the divorce was finalised, but no such allegations were made on this occasion. A DSM–III–R diagnosis of atypical psychosis was made (American Psychiatric Association, 1987).

Case 2

Ms B is a 40-year-old married woman with two adopted children. She herself was adopted. There was no family history of psychiatric disorders and she gave no history of sexual abuse. At the age of 26, she married and emigrated to Canada from England. Unable to have children, the couple chose to adopt although the husband was ambivalent about parenthood.

Ms B's first psychiatric contact occurred following the adoption of their second child, whose behavioural problems led to the family entering therapy. Shortly afterwards, Ms B began to decompensate and over the course of a week described increasing paranoia, racing thoughts, poor appetite and decreased sleep. She felt for the first time that the husband was having an extramarital affair as well as sexually molesting the children, and she became obsessed with the notion that there existed a collection of sexually explicit photographs involving her husband and the children. She was admitted to hospital, and physical and laboratory examinations proved negative. On trifluoperazine (5 mg t.d.s.) symptoms resolved within three days. At this point she withdrew the charges, attributing her difficulties to external stressors. She was discharged with a DSM–III–R diagnosis of brief reactive psychosis, and returned to live with her husband and children.

Discussion

The outcome in cases of false allegations attributable to an underlying psychotic disorder can be poor (e.g. Macdonald, 1971). Of the cases reviewed by the present authors, only one demonstrated a favourable outcome in which this particular delusion resolved with treatment (Goodwin *et al*, 1978). The two cases presented here are rather unique in that both involved transient psychotic episodes. With the first case, the mother's delusions resolved even before the charges could be fully investigated. In the second, the onset of psychotic symptoms and allegations was rather precipitous and the treating psychiatrist was astute enough to recognise the evolution of the psychosis and to correctly address its treatment.

It is important to bear in mind that the presence of psychosis in no way ensures that accusations are false, and all such cases merit the same thorough investigation associated with charges of sexual abuse. In both of the cases here, it was necessary to ensure that the allegations were, in fact, false despite their retraction upon resolution of the psychotic symptoms. Guidelines for such investigations have been outlined (e.g. Jones & McQuiston, 1988; Goodwin, 1989), and include a review of current charges and past records, interviews with the various family members, and an opportunity to evaluate the children in both open and structured settings.

In our two cases the spousal allegations were made by the mothers. However, it also is worth noting that fathers may make false allegations regarding the mother, including perceived relationships with male lovers (Thoennes & Pearson, 1988).

Finally, it has been suggested that false allegations can occur in the presence of a severe psychiatric disorder in the mother and evidence of a symbiotically disturbed parent–child relationship (Klajner-Diamond *et al*, 1987). While both of the cases presented here reflected a serious psychiatric disorder in the form of psychosis, evidence could not be found to substantiate symbiotically disturbed mother–child relationships in either. In both cases, particularly the second, the father was perceived by the mother to be neglectful in his responsibilities as a parent. That these same mothers, when psychotic, accused the fathers of harming the children is of interest from a psychodynamic standpoint, and one might speculate about the role of their perception and the associated anger in the content of the psychotic material.

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British Journal of Psychiatry (1991), **159**, 289–299

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Editor: Ian Pullen

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New genetic model of schizophrenia

Sir: I enjoyed the provocative speculations of Roberts & Claridge about the genetics of schizophrenia (*Journal*, April 1991, **158**, 451–456). The notion that defects in different genes lead to similar phenotypes is plausible because of the known interactions between various neuronal systems in the brain. Such a possibility could be tested by investigating offspring of affected parents or affected half-siblings of ill individuals. In each instance, the proband would be likely to inherit defects in different genes. It would be predicted that the subject would either suffer from a more severe illness than his relatives or manifest a different phenotype. Indeed, it has been suggested that more severe illnesses emerge following matings between psychotic individuals (Penrose, 1968). Unfortunately, not all such studies are in agreement (Elsaaser, 1952). I am not aware of any studies involving half-siblings.

The concepts of 'leaky mutations' and threshold requirements of gene products for expression of phenotypes may explain the bewildering disagreement about the mode of inheritance of schizophrenia. The suggested continuum of severity linking schizotypy and schizophrenia also has considerable appeal. However, concepts of quantitative genetics may not be applicable here. Unlike clotting disorders or eye colour in *Drosophila*, the schizophrenic and schizotypal phenotypes are difficult to 'measure'. The difficulties arise not only because of disagreement about which features are specific to these disorders, but also because it is inherently difficult to quantify behaviour. Therefore, it may be difficult to demonstrate a gene dose–effect relationship for schizotypy and schizophrenia.

Elsaaser, G. (1952) *Die Nachkommen geisteskranken Ellenpaare.* New York: Stechert and Hoffner

Penrose, L. S (1968) Critical survey of schizophrenia genetics In *Modern Perspectives in World Psychiatry* (ed J. G Howells) Edinburgh: Oliver and Boyd

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Sir: The informative article of Roberts & Claridge (*Journal*, April 1991, **158**, 451–456) begs the question as to how we can conceptualise schizophrenia, and thus whether analogy with, for example, blood clotting mechanisms can be sustained.

It seems likely that the biological basis of schizophrenia is a vulnerable conformation of a part of the brain, established during brain development. What do we know about the likely involvement of genetically coded polypeptides in this?

Like other parts of the body, brain development is unlikely to be the consequence of a genetically coded series of events: rather, it will be a cascade of cellular differentiation mediated by peptide regulatory factors (Slack, 1989), whose (genetically coded) production will be switched on and off by the appearance of structures related in anatomy or in time. In addition, we know from the work of Hubel and Weisel that environmental factors can influence the final structure of neural pathways (Weisel, 1982). This is probably mediated by stimulating the development of certain neural buds, and not of others – again, a possible place for the activity of peptide growth activators.

In this model, 'the gene for schizophrenia' could code for a peptide associated with the migration of neural elements. But given the spreading network of interactions during growth and development of the brain, it is not possible to construct an explanation of its inheritance on the supposition that 'schizophrenia results from defects in a pathway a→b→c→ brain function'. The timing of, and the substrate for, the activity of such a gene are subject to a myriad of possible modulations, from the coincidental development of the rest of the organism, and from environmental factors. The final expression of the gene as schizophrenia could depend upon this quite as much as the details of the inheritance of the gene itself.

SLACK, J. M. W. (1989) Peptide regulatory factors in embryonic development. *Lancet*, *i*, 1312

WIESEL, T. N (1982) The postnatal development of the visual cortex and the influence of the environment (Nobel Lecture). *Bioscience Reports*, **2**, 351–377

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SIR: We were interested to read the paper by Roberts & Claridge (*Journal*, April 1991, **158**, 451–456) and appreciate the new approach in giving a genetic model with a dimensional view of schizophrenia. The authors have given interesting analogies of eye colour in *Drosophila*, and thrombin formation. Most of the ideas were centred around the percentage production of active protein and the examples were towards less than normal amounts of the resulting proteins.

They also gave another example wherein it is supposed that schizophrenia results from defects in a pathway of brain function. A complete mutation in the gene controlling a step of this pathway would result in a phenotype, the failure of development of brain function being manifest as schizophrenia.

We agree with this proposition, but want to look at it from another angle. Instead of postulating that the altered genes on one or more chromosomes produce an end effect of reduction in the amount of protein (for example an enzyme of a pathway), we can say that the end result of the mutation on a single gene acting on its own or the mutations on several genes acting in union would cause an increase rather than a decrease in the amount of protein (again an enzyme). We can cite the example of acute intermittent porphyria where the activity of the hepatic delta-amino laevulinic acid synthetase is increased several fold (Dewar, 1988). Another example is Huntington's chorea in which it has been shown that there are increased dopamine concentrations in parts of basal ganglia (Gelder *et al*, 1989). This possibility of increase in protein would be in conformity with the dopamine hypothesis where the dopamine-like effect is supposed to be increased. What we mean to say is that, under the given circumstances, it is also possible that the pathology can be explained by overproduction of proteins – say to 200% (not only to less than 40% as stated in the paper). So in this example, if 200% explains development of schizophrenia, 150% may explain a schizotypal state. The authors gave the example of thrombin formation and cited haemophilia as a pathological entity resulting from a block of any step in the pathway. We feel that hypercoagulability is a suitable example that can be given from our view of increased protein formation. As we have already mentioned, this approach seems to be much closer to the dopamine hypothesis.

DEWAR, A. J (1988) *Companion to Psychiatric Studies, 4th edn* (eds R. E. Kendell & A. K. Zealley). Edinburgh: Churchill Livingstone.

GELDER, M., GATH, D. & MAYOU, R. (1989) *Oxford Textbook of Psychiatry, 2nd edn*. Oxford. Oxford Medical Publications

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Sibling sex and bulimia nervosa

SIR: Lacey *et al*'s data on the siblings of patients with bulimia nervosa (*Journal*, April 1991, **158**, 491–494) led them to conclude that all-female sibships were significantly over-represented. This conclusion is based on dubious statistical reasoning. Only female bulimics were included in the study, and the authors have underestimated the impact that this will have had on the likelihood of all-female sibships. For example, in the case of a sibship of two (i.e. the female proband and just one brother or sister), the authors claim that the expected proportion of all-girl sibships is one-third. This is a surprising claim since having a brother and having a sister should be equally likely (provided one ignores the slight excess of boys in the general population), leading to an expected proportion of one half. The authors' expectation that chance alone will result in bulimic women having strikingly more brothers than sisters seems no better founded than the expectation that normal women will typically have more brothers than sisters, or that normal men will typically have more sisters than brothers.

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Author's reply: Dr Goodman's comment on 'dubious statistical reasoning' is unfortunately inaccurate. The probabilities in Table 2 of the paper are based on probability theory relating to conditional probability. The probability of an event A being true, given that event B is true, is equal to the probability of A and B being true divided by the probability of event B being true. Mathematically this is denoted:

$$P(A|B) = P(A \cap B)/P(B).$$

The argument was rehearsed in the paper for a sibship of three. We will demonstrate it here for a sibship of two. The possibilities for a sibship of two are: MM MF FM FF. Thus each of these has a probability of $\frac{1}{4}$. We need to calculate the probability of a sibship of two girls given that at least one sibling is a girl. We make no assumption about the position of the bulimic girl – a fact stated in the paper. Event A is 'all girl sibship' and event B is 'at least one sibling is a girl'. Applying the formula above we get:

$$P(\text{all girl sibship}|\text{at least one sibling is a girl}) = \tfrac{1}{4}/\tfrac{3}{4} \text{ i.e. } \tfrac{1}{3}.$$

The same argument applies for other sibship sizes. The probability of an all-girl sibship is only half if one assumes knowledge of the position of the sibling. Thus if you know the eldest sibling is a girl then the probability of an all-girl sibship is half.

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Transmissible dementias

Sir: The article by Harrison & Roberts (*Journal*, April 1991, **158**, 457–470) draws attention to the variability of pathological findings in the transmissible dementias.

Spongiform change has been held to be the main pathognomonic feature of several transmissible encephalopathies in both man and animals (Masters & Richardson, 1978). The transmissible encephalopathies are known to differ in the distribution and/or type of pathological lesion in the brain. For example, only 10% of Creutzfeldt-Jacob disease (CJD) brains show amyloid plaques, whereas they are seen in all cases of Gerstmann-Straussler syndrome. The clinical manifestations of these diseases are variable between and within disease. CJD may present either subacutely (rapid onset and progression, duration 6 months) or chronically (variable progression, duration 2–4 years), and it has been suggested that this variability could be accounted for, in some familial cases, by phenotypic expression of allelic variants of the prion protein gene (Hardy, 1989).

In the light of current interest in the transmissible dementias, and in establishing precise estimates of disease incidence, it is now important to note that diffuse Lewy body disease (DLB) may be both clinically and pathologically confused with CJD. DLB (also called Lewy body variant of Alzheimer's disease (AD) (Hansen *et al*, 1990), and senile dementia of the Lewy type (Perry *et al*, 1990)) has been clearly shown to exhibit spongiform change in pathological studies. The spongiform change in DLB has been clearly distinguished from the microvacuolation which occurs in the upper layers of cerebral cortex in AD and, in all cases so far reported, it is confined to mesial temporal lobe structures, throughout all cortical layers (Hansen *et al*, 1989; Byrne *et al*, 1989).

In a minority of cases (e.g. Byrne *et al*, 1989) these changes are associated with clinical features suggestive of CJD and in one of our cases (Byrne *et al*, 1989), these were associated with serial electroencephalographic changes consistent with the diagnosis of CJD. One attempt to transmit DLB with spongiform change failed (Hansen *et al*, 1989), and no estimation of prion protein has yet been performed.

Harrison & Roberts summarise the reports of spongiform change in AD, but those cases reported by Smith *et al* (1987) had symptoms suggestive of CJD, although myoclonus has been reported in AD.

In view of the fact that DLB is increasingly recognised as a common disease accounting for up to one-third of cases of dementia, with associated spongiform change in up to 6% of cases (Hansen *et al*, 1989; Byrne *et al*, 1989), the number of cases in which CJD is suspected, because of heightened clinical awareness, will be numerically very significant and is likely to be a confusing variable in studies of transmissible encephalopathies.

Byrne, E. J., Lennox, G., Lowe, J., *et al* (1989) Diffuse Lewy body disease: clinical features in fifteen cases. *Journal of Neurology, Neurosurgery and Psychiatry*, **52**, 700–717

Hansen, L. A., Maskiah, E., Terry, R. D., *et al* (1989) A neuropathological subset of Alzheimer's disease with concomitant Lewy body disease and spongiform change. *Acta Neuropathologica (Berlin)*, **78**, 194–201

——, Salmon, D., Golasko, D., *et al* (1990) The Lewy body variant of Alzheimer's disease. *Neurology*, **40**, 1–8.

Hardy, J. A. (1989) 'Slow virus' dementias: prion gene holds the key. *Trends in Neurosciences*, **12**, 168–169.

Masters, C. L. & Richardson, E. P. (1978) Subacute spongiform encephalopathy (Creutzfeldt-Jakob disease): the nature and progression of spongiform change *Brain*, **101**, 333–334.

Perry, R. H., Irving, D., Blessed, G., *et al* (1990) Senile dementia of Lewy body type. A clinically and neuropathologically distinct form of Lewy body dementia in the elderly. *Journal of Neurological Sciences*, **95**, 119–139

Smith, T. W., Anwer, U., DeGirolami, V H., *et al* (1987) Vacuolar change in Alzheimer's disease *Archives of Neurology*, **44**, 1225–1228.

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'Beam them up, Scotty!'

Sir: Harrison and Roberts are to be congratulated on drawing on research data from the future as well as the present and past (*Journal*, April 1991, **158**, 457–470). If we are to proceed to this future, however, its integrity must be maintained by not tampering with it in the present. The finding 'life, Jim, but not as we know it' was reported by Science Officer Spock and not Chief Medical Officer McCoy. I would hesitate to suggest it was a Freudian slip on the part of a medic who made this mistake, but instead would remind us of Mr Spock's words of hope for psychiatry when visiting the Galaxy's remaining asylum for the criminally insane on Elba II (Star Trek, Episode 71, *Whom Gods Destroy*): "A total of 15 criminally insane out of billions is not what I would call an excessive number".

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The Yates' correction factor in chi-squared analyses

Sir: On page 236 of Healy *et al*'s paper (*Journal*, February 1991, **158**, 234–237), it says, under the heading "Data analysis", that data collected on the different groups was compared using the χ^2 test with Yates' correction factor.

The correction factor originally devised by Yates (1934) was applied to Pearson's chi-squared to improve the approximation to a continuous function. Standard statistical texts used by students over the years have given this correction factor as a matter of course (e.g. Blalock, 1979). However, this correction factor has been questioned in recent years and Hopkins & Glass (1978) discuss this. Research findings show that the chi-squared works well even when the average expected frequency is as low as 2. Hopkins & Glass quote Camilli & Hopkins (1978) to say that not only is the Yates' correction for continuity unnecessary, it also causes the already conservative values for chi-squared to be even more conservative.

It is true that statisticians do not all agree on these points; Yates himself restated his arguments as recently as 1984. If, however, we are concerned with the degree of conservativeness of the values obtained, research workers might do well to analyse data without the Yates' correction factor, or use both methods.

Blalock, H. M. (1979) *Social Statistics, 2nd edn.* Maidenhead, UK McGraw-Hill Book Company International Student Edition.

Camilli, G. & Hopkins, K. D. (1978) Applicability of chi-square to 2 × 2 contingency tables with small expected frequencies. *Psychological Bulletin*, **85**, 163–167.

Hopkins, K. D. & Glass, G. V. (1978) *Basic Statistics for the Behavioural Sciences*. Englewood Cliffs: Prentice-Hall.

Yates, F. (1934) Contingency tables involving small numbers and the Chi-square test. *Journal of the Royal Statistical Society* (suppl. 1), 217–235.

Yates, F (1984) Tests of significance for 2 × 2 tables *Journal of the Royal Statistical Society*, Series A, **147**.

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The strength of association

Sir: May I briefly underline an important point made by Muijen (*Journal*, May 1991, **158**, 713). He rightly stresses that it is the size of a correlation (provided it is significant) which measures the strength of the association between the two variables. But how large must a correlation be, to be considered useful? An answer to this thoroughly practical question can be derived from a theorem of information theory (Pinsker, 1964, p. 123), which deserves to be better known.

The usefulness of a correlation lies essentially in its predictive power. If two variables are correlated and we know the value of one of them on a given occasion, we know something about the value of the other. The higher the correlation, the more we know, i.e. the more information it provides. The amount of information is given by:

$$I(x,y) = -\tfrac{1}{2}\log(1-r^2)$$

It is expressed in binary units ('bits') if logarithms to base 2 are used.

The question now becomes, what is the smallest usable quantity of information? Arguably the answer is one bit. If we know that one variable is 'high' or 'low', i.e. above or below some appropriate cut-off value, then one binary unit of information will be just enough to tell us with certainty whether the other variable is 'high' or 'low'. Smaller amounts of information will also tell us this *but with increasing degrees of uncertainty*. On the other hand, a larger amount of information would enable us to classify the variables into three or more categories. Clearly, a two-fold classification is the crudest possible. Therefore, setting $I(x,y)$ equal to 1 and solving the equation we find $r = \frac{1}{2}\sqrt{3} = 0.866$ as the smallest correlation which has even this degree of predictive power.

Some may find this result surprising. Correlations of this magnitude are rarely seen in the literature of psychiatric research or clinical psychology. This evidently means that the variables in question are not associated to any useful extent (whether for clinical decision-making purposes or for the advancement of theory). I submit that this is usually because they are 'soft', i.e. noisy and only loosely relevant estimates of the underlying variables which we would prefer to be measuring, if we knew what they were and how to measure them.

The use of vague and subjective methods of psychological 'measurement' introduces a screen of noise between the numbers which we handle statistically and the real object of study; hence the low correlations usually seen. Much more research effort must be put into developing and using more penetrating methods of identifying, defining and measuring those psychological processes, the malfunctioning of which we call 'psychopathology'. Until this is done, psychiatric research of all kinds will continue to be bogged down in futile attempts to connect increasingly sophisticated genetic, biochemical, neurophysiological and neuroanatomical 'hard' data with 'soft' clinical data, based on nebulous measurements or on diagnostic systems decided by committees.

We cannot observe mental processes directly, any more than 'hard' scientists can observe chemical kinetics or intra-atomic events directly. We shall only make solid progress as they have done, by formulating hypotheses unambiguously and in language which allows mathematics to be used to derive experimentally testable predictions. This 'mathematical modelling' approach demands some mental effort, but it does yield solid results and after all, it would be rather foolish to imagine that we could ever establish a science of the mind without exerting our own.

PINSKER, M. S (1964) *Information and Information Stability of Random Variables and Processes* (Transl A. Feinstein) San Francisco Holden-Day

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Reading about transcultural psychiatry

SIR: Professor Cox gives the reader an excellent start to reading the literature on transcultural psychiatry. He hints that it might however be limited since "The choice of books inevitably reflects my own clinical and academic interests, and the volumes received from the review editor of this Journal over recent years". "Recent years" is significant. His view reflects his own era. There was an era before that to which I was witness. At that time, E. D. Wittkower was regarded as the initiator. When it came to inviting an author on "transcultural psychiatry" for *Modern Perspectives in World Psychiatry* as long ago as 1968, I turned automatically to Wittkower who presented a scholarly review of the field. What Wittkower originated, Murphy carried on with great zest and effort; I would not wish to diminish his massive contribution in any way.

WITTKOWER, E. D. (1968) Transcultural psychiatry In *Modern Perspectives in World Psychiatry* (ed J. G Howells). Edinburgh Oliver & Boyd.

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Early cortical tactile-evoked potentials, laterality and schizophrenia

SIR: Allen *et al* (*Journal*, April 1991, **158**, 529–533) have repeated with differing results an earlier study of Cooper *et al* (1985) in which the ipsilateral and contralateral cortical potentials evoked by vibrotactile stimulation of the finger were compared. While their attempt to reproduce faithfully the experimental conditions used by Cooper *et al* is to be applauded, their paper raises a number of important general issues in relation to the interpretation of data from electrophysiological experiments in psychiatric patients (e.g. Cooper, 1985; Tress *et al*, 1983).

In their report, the authors make the extraordinary statement that conventional nomenclature was not used to describe their traces because "reporting results became too complicated owing to different latencies in different subject groups" (p. 530). They give mean latency values of certain responses using their own system of nomenclature. It is precisely because latencies may vary between subject groups that consistent nomenclature is essential. Evoked potentials are conventionally identified according to the polarity and modal latency of their peaks. Thus when potentials from patients and normal subjects are compared, like is compared with like, and changes in the characteristics of the potentials may be related to changes in the processes or structures generating them. Unfortunately, when the present results are quoted by future authors, confusion will arise. For instance, it would seem reasonable to suppose that in a paper on early cortical-evoked potentials, the wave labelled N1 (their Fig. 1) would refer to the initial negative-going cortical potential (which is conventionally called N19 or N20 since its modal latency is about 20 ms). A peak corresponding to N20 is clearly present in Fig. 1 but is unlabelled and distinct from the peak labelled N1.

The authors note considerable variability both within and between subjects in the amplitudes of their cortical potentials. At least some of this variability is likely to arise from the type of stimulus used. Vibrotactile stimulation of the skin of the finger may excite impulses in a wide range of sensory fibres of differing conduction velocities (Iggo, 1982); together with the 10 ms duration of the stimulus this produces a diffuse and temporally dispersed afferent volley. Furthermore, spread of vibration is a potent stimulus to muscle receptors of the intrinsic muscles of the hand and forearm (Davies, 1987). Since the amplitude of excursion of the vibrator is not quoted in their paper, the extent of these effects cannot be assessed.

Finally, a further source of variability might arise from combining data from patients suffering different forms of schizophrenic illness. Until proved otherwise, it should not be assumed that sensory processing or its dysfunction is similar in acute v. chronic patients, or in those with positive v. negative symptoms.

Cooper, J E, Andrews, H & Barber, C. (1985) Stable abnormalities in the lateralisation of early cortical somatosensory evoked potentials in schizophrenic patients. *British Journal of Psychiatry*, **146**, 585–593.

Davies, T. W. (1987) Contribution from hand muscle afferents to forearm muscle stretch reflexes in man. *Journal of Physiology*, **390**, 258

Iggo, A. (1982) Cutaneous sensory mechanisms. In *The Senses* (eds H. B. Barlow & J. D Mollon), pp 369–408. Cambridge: Cambridge University Press.

Tress, K H, Caudrey, D J & Mehta, B. (1983) Tactile-evoked potentials in schizophrenia. Interhemispheric transfer and drug effects. *British Journal of Psychiatry*, **143**, 156–164

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Clozapine in patients with NMS

Sir: Szabadi & Cashman (*Journal*, April 1991, **158**, 577) suggest that clozapine is the drug to consider when a patient has suffered neuroleptic malignant syndrome (NMS). However, it would be inappropriate to generalise their experience with clozapine to other patients who have suffered NMS. The first case report linking clozapine (in combination with lithium) to NMS appeared more than four years ago (Pope *et al*, 1986). This was followed by another case in which NMS was presumed to have resulted from a combination of clozapine and carbamazepine (Muller *et al*, 1988). There might have been some scepticism about these reports as clozapine by itself could not be implicated. More recently, a series of case reports suggested that clozapine alone can cause NMS (e.g. DasGupta & Young, 1991). It would not be unfair to say that the strategy suggested by Szabadi & Cashman (1991) has also been adopted in the past without recurrence of NMS. Despite its different structure and pharmacological profile, clozapine does affect the dopaminergic system; recently the gene for a human dopamine D4 receptor with high affinity for clozapine has been cloned (Van Tol *et al*, 1991). In view of these observations it may be rather premature to generalise about the potential safety of clozapine in patients with NMS who need further antipsychotic treatment.

DasGupta, K. & Young, A (1991) Clozapine-induced neuroleptic malignant syndrome. *Journal of Clinical Psychiatry*, **52**, 105–107

Muller, T, Becker, T. & Fritze, J (1988) Neuroleptic malignant syndrome plus carbamazepine. *Lancet*, **31**, 1499–1500

Pope, H. G, Cole, J O, Choras, P. T, *et al* (1986) Apparent neuroleptic malignant syndrome with clozapine and lithium. *Journal of Nervous and Mental Diseases*, **174**, 493–495.

Van Tol, H H M, Bunzow, J. R, Guan, H C. *et al* (1991) Cloning of the gene for a human dopamine D4 receptor with high affinity for the antipsychotic clozapine. *Nature*, **350**, 610–614

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Outcome indicators in mental handicap

Sir: We read with interest Jenkins' article (*Journal*, October 1990, **157**, 500–514), particularly on outcome indicators for mental handicap. Although we fully agree there is an urgent need for specific outcome indicators for mental health care, we were dismayed to see that many of the suggested indicators for mental handicap bore little relationship to the clinical practice of the 'psychiatry of mental handicap'. Many indicators given seemed to be more related to the clinical practices of obstetrics, paediatrics, community medicine, etc., aimed at the prevention and aetiology of mental handicap, rather than the practice of mental health care.

The author rightly states that people with a mental handicap are more prone to developing psychiatric disorders, and probably appreciates that there are vulnerability factors applicable to this group of people, such as social, emotional, environmental and physical causes. Thus some people with a mental handicap have additional special mental health needs and require specialist and generic mental health care services. The outcome indicators chosen should reflect an understanding and acknowledgement of these needs. The increased adoption and use of multi-axial classification systems (DSM–III–R, and the recently proposed multi-aspect assessment (Annes *et al*, 1991)) show the appreciation of the multiplicity of factors contributing to the development of psychiatric illness, behaviour disorders, personality disorder, and offending in people with a mental handicap. Similar approaches need to be extended to outcome measurements.

In reducing the incidence of mental handicap, we should also be aiming to reduce the incidence and prevalence of additional special mental health needs as well as reducing the related effects of adverse social and environmental factors. Therefore we need to relate outcomes to input and process activities. The latter indicators should aim at ensuring good quality comprehensive service provisions, including regular individualised client reviews with forward co-ordinated planning for both providers and clients across all age groups. More specifically, indicators of specialist mental health care input must include the availability of appropriate high quality community and hospital-based specialist psychiatric services for people with a mental handicap who need them. These should consist of assessment, day-patient and in-patient treatment, rehabilitation, and follow-up components.

Measurable outcomes of input and process activities should be ideally related to reduction of disability as well as enhancement of skills. Outcomes of mental health care input should take into account relapse and readmission rates. All indicators should be applicable to people with a mental handicap living in both the community and hospitals.

Further research, together with the practices of clinical audit, quality assurance, and consumer satisfaction initiatives, should contribute to the development of specific indicators relevant to clinical practice of mental handicap and mental health. A closer dialogue and collaboration between researchers, policy makers and clinicians is undoubtedly needed.

ANNESS, V., BHAT, A., BOURAS, N., *et al* (1991) A multi-aspect assessment for people with a mental handicap *Psychiatric Bulletin*, **15**, 146

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Census-derived measures and planning

SIR: Thornicroft's exploration of the relationship between treated mental disorder and census-derived measures of social deprivation clearly has important implications for the planning of mental health services (*Journal*, April 1991, **158**, 475–484). The great advantage of census-derived indices is that they are based on readily accessible data that are available for all areas. However, it should be noted that there are some groups for which the census does not provide reliable information – in particular the homeless.

Until 1991, the ten-yearly census was completed in relation to households and so, by definition, omitted the homeless. While there is likely to be a relationship between homelessness and the change of address factor, it is both uncertain and indirect. However, for the first time, the 1991 census attempted to enumerate certain sub-groups of homeless individuals. Street workers who had had regular contact with the 'literal' (i.e. roofless) homeless were enrolled as enumerators to facilitate this process. It should be remembered that the roofless, while highly visible and politically embarrassing, comprise only a fraction of the total number of homeless. Further, it has been argued that this simple headcounting approach is not the best suited to estimate the size of the homeless population (Susser *et al*, 1989).

Awareness of the size of the homeless population is important for those planning mental health services, as the homeless are known both to suffer an excess of mental disorder (Tessler & Dennis, 1989) and to be heavy users of mental health services (Fisher *et al*, 1990) As a result, in accordance with 'Working for Patients' (Department of Health, 1989), it is incumbent on health authorities to make specific attempts to estimate the size and mental health needs of their local homeless population.

This information must then be utilised in a creative fashion to ensure that the health needs of the homeless are met. For example, there is no evidence that the homeless are unable to make use of existing services. Any excess unmet need is likely to reflect patterns of use of service that are so chaotic as to be rendered useless. One innovation that may bear fruit would be the development of a case register of the homeless mentally ill. This would give such individuals a better chance of receiving some form of ongoing, co-ordinated care, wherever they might present. Further, such a register would facilitate the equitable distribution of any central funding which may be directed towards the health care of the homeless.

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FISHER, N., TURNER, S & PUGH, R (1990) Homeless and mentally ill. *Lancet*, 14 April, 914–915.

SUSSER, E., CONOVER, S. & STRUENING, E. L. (1989) Problems of epidemiologic method in assessing the type and extent of mental illness among homeless adults. *Hospital and Community Psychiatry*, **40**, 261–265.

TESSLER, R. & DENNIS, D. (1989) *A Synthesis of NIMH-Funded Research Concerning Persons Who are Mentally Ill*. Washington DC: National Institute of Mental Health.

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Screening of admissions to accident and emergency

SIR: Bell *et al* (*Journal*, April 1991, **158**, 554–557) confirm numerous previous reports that it is always possible in the general hospital for psychiatrists to locate some patients whose psychiatric disorders have not been diagnosed by physicians or surgeons and others who have been inappropriately referred. Does this matter?

Almost invariably in this kind of study, some identified patients, although psychiatrically disordered, will be judged unsuitable for psychiatric treatment or may decline it, or treatment may prove ineffective or even detrimental; others, after leaving hospital, may be treated by general practitioners or reach psychiatrists through various agencies. Unless a comparison is made between the outcome of similar groups of patients referred or not referred to psychiatrists it remains an open question as to how much the medical staff's failure to detect psychiatric morbidity really matters.

Every specialty has to accept some inappropriate referrals, but Drs Bell *et al* do have a point to make about the automatic referral of all overdose patients to psychiatrists in the Accident and Emergency Department at University College Hospital. This practice ceased to be mandatory in 1984 when the DHSS amended its recommendation that all self-poisoned patients should be seen by psychiatrists. Medical staff, however, are unlikely to be sufficiently motivated to carry out an initial psychiatric assessment if psychiatrists – or indeed psychiatric nurses or social workers as Drs Bell *et al* propose – are always available to do the job for them.

There is in fact ample evidence that medical and accident service staff, given suitable training, are competent to assess suicidal risk in their overdose patients and to decide the need for psychiatric or social work referral (e.g. Waterhouse & Platt, 1990). By gaining experience in making this assessment they may incidentally improve their ability to listen to the generality of their patients and to detect if they are psychiatrically unwell.

WATERHOUSE, J & PLATT, S (1990) General hospital admission in the management of parasuicide a randomised controlled trial. *British Journal of Psychiatry*, **156**, 236–242.

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What's in a name?

SIR: Changing names/titles is a frequently used device to signify real or imagined change and progress (e.g. Windscale becomes Sellafield, Mental Illness Service becomes Mental Health Service, etc.). Now Consultant Psychiatrist, at least in Dr. Falloon's case, becomes "Consultant Physician (Mental Health)" (Rea *et al*, *Journal*, May 1991, **158**, 642–647). This title may be less daunting and less stigmatising among patients and even other medical colleagues, although it could cause confusion as psychiatrists are not, at least in popular understanding, physicians.

I rather like the historical "Mental Hygienist"; perhaps other psychiatrists have suggestions for a new name. Should we consult widely on this issue and change not only our titles but the name of the College?

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Anorexia nervosa in the elderly

SIR: O'Shea (*Journal*, May 1991, **158**, 716–717) questions the diagnosis of anorexia nervosa in the elderly lady we previously described (*Journal*, February 1991, **158**, 286–287), and suggests that an atypical affective disorder was a more likely explanation of her symptoms. This assertion we believe to be unfounded, as at no stage during our involvement with this lady did she demonstrate any affective symptoms whatsoever. Instead she demonstrated the typical features of anorexia nervosa, as defined by the DSM–III–R criteria, of severe weight loss, a typical distortion of body image, and a fear of becoming fat. Amenorrhoea was obviously not of relevance because of her advanced age. Although it is difficult to be certain of the exact circumstances surrounding her first episode fifty years beforehand, her account, confirmed by that of other family members, is strongly indicative of anorexia nervosa, and gives no cause to promote an alternative diagnosis.

Reports of eating disorders in the elderly are not restricted to that of Bernstein (1972), which O'Shea rightly questions. We have reviewed sixteen cases of anorexia nervosa or bulimia nervosa in the over-fifties reported in the recent literature (Cosford & Arnold, submitted), and found serious doubt regarding the diagnosis in only four. The remaining twelve demonstrated the typical psychopathology of an eating disorder, apart from the patient's age. Interestingly, half had arisen for the first time in later life, while the other half had initially arisen in the patient's youth, and they either remained persistently unwell for many years, or suffered a relapsing and remitting course, with remissions of up to fifty years in some cases.

It is our assertion that advanced age should not by itself rule out the diagnosis of anorexia nervosa, when the typical features are undoubtedly present, and there is no alternative major physical or psychiatric cause for the patient's symptoms.

Bernstein, I. (1972) Anorexia nervosa. Ninety-four year old woman treated with electroshock. *Minnesota Medicine*, **55**, 552–553.

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Buspirone-induced mania: possible interaction with disulfiram

Sir: McIvor & Sinanan (*Journal*, January 1991, **158**, 136–137) report the case of an alcoholic patient who developed mania when treated with buspirone 20 mg/day and disulfiram 400 mg/day. The authors attribute mania to buspirone treatment and suggest a possible mechanism consisting of facilitation of dopaminergic functions by this drug.

Although azapirones can have antidepressant effects (Robinson, 1989) and buspirone could cause mania by itself, we have reasons to believe that in this particular case the interaction between buspirone and disulfiram could cause mania. Drs McIvor & Sinanan point out that no significant interaction has been reported with buspirone and disulfiram. However, both drugs can interact in at least two sites: (a) the brain, and (b) the liver.

(a) The brain: disulfiram inhibits dopamine beta-hydroxylase resulting in decreased brain norepinephrine levels and increased dopamine levels (Ciraulo & Ciraulo, 1988). Through this mechanism disulfiram can enhance the facilitation of dopaminergic action by buspirone and contribute to the development of mania. In fact, the patient reported by Drs McIvor & Sinanan required high-dose neuroleptic medication to control his symptoms, which concurs with the presence in the synaptic cleft of high concentration of dopamine (as could be expected with this mechanism). Furthermore, it has been observed that alcoholics with low cerebrospinal fluid dopamine beta-hydroxylase activity are more likely to develop dysphoric symptoms (Ciraulo & Ciraulo, 1988). It could be argued that the patient took disulfiram only intermittently, which makes a possible buspirone–disulfiram interaction less likely. However, two factors must be considered: (a) disulfiram is eliminated within three to five days and its principal metabolite (diethyldithiocarbamate) also inhibits dopamine beta-hydroxylase; (b) the patient was taking 400 mg/day of disulfiram which is a high dose compared with the standard dose recommended to avoid adverse effects: 250 mg/day (Kaplan & Sadock, 1988).

(b) The liver: disulfiram is an inhibitor of the hepatic microsomal enzyme oxidase system (Ciraulo & Ciraulo, 1988). As buspirone is eliminated by oxidative metabolism (Gammans *et al*, 1986), disulfiram could contribute to the elevation of plasma levels of buspirone by delaying its elimination.

In summary, by either or both of these mechanisms, disulfiram could have contributed, with buspirone, to the development of mania. Therefore we think that a possible buspirone–disulfiram interaction must be considered when buspirone is prescribed as a non-addictive anxiolytic in alcoholic patients on disulfiram.

Ciraulo, D. A. & Ciraulo, A. M (1988) Substance abuse. In *Handbook of Clinical Psychopharmacology* (eds J. P. Tupin, R. I. Shader & D S Harnett), pp. 121–157. Northvale: Jason Aronson Inc

Gammans, R. E., Mayol, R. F. & Labudde, J. A. (1986) Metabolismo y disponibilidad de la buspirona. *American Journal of Medicine (edición en español)*, **80** (suppl. 3B), 42–52.

Kaplan, H. I & Sadock, B. J. (1988) *Synopsis of Psychiatry, Behavioural Sciences, Clinical Psychiatry*. (5th edn) Baltimore: Williams & Wilkins.

Robinson, D S (1989) The antidepressant effects of buspirone and its analogue, gepirone. *Family Practice Recertification*, **11** (suppl. 9), 24–31.

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Clinical irrelevance of HAD factor structure

Sir: Moorey *et al* (*Journal*, February 1991, **158**, 255–259) happily reported the two distinct, stable, consistent and reliable factors on factor analysis of the Hospital Anxiety and Depression Scale (HAD) which corresponded to the questionnaire's anxiety and depression subscales. Clinical experience of using the HAD, does not however, support this bi-dimensional solution. In our trial with HAD in patients suffering from clinical anxiety and depression we found that the mean anxiety subscale scores were much higher in the depressed patients – higher than the anxiety score of the anxiety disorder patients and also higher than the depression subscale score of the depressive disorder patients! Thus the two subscales hardly discriminate between clinical anxiety and depression, irrespective of the statistical derivations. In fact, the authors themselves noted substantially more anxiety than depression but they have not reported the anxiety and depression subscale scores separately in their depressed and anxiety patients. It seems that the total HAD scores are more meaningful clinically than the subscale scores. At the moment HAD is a widely used instrument and it would be very useful if prospective authors gave subscale scores and correlated these with the clinical observations.

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A possible antiaggressive effect of cyproterone acetate

Sir: Some clinical studies suggest that testosterone may influence certain kinds of aggressive behaviour in human males (e.g. Olweus *et al*, 1980).

We would like to report the case of a young psychotic patient whose aggressive and impulsive behaviour has been dramatically improved by a competitive inhibitor of the androgen binding site – cyproterone acetate (CPA) – whereas a LHRH analogue treatment (reducing the plasma testosterone level to castration values) failed to maintain the antiaggressive effect of CPA.

Case report A 30-year-old man with a psychiatric diagnosis of infantile psychosis was studied Since the age of ten, he had shown aggressive and impulsive behaviour treated with varying combinations of neuroleptic drugs, propanolol, benzodiazepines or carbamazepine, depending on the patient's level of aggression.

During the month which preceded this study, his aggressive behaviour gradually increased, resulting in verbal and physical aggression against either objects or staff members, leading to occasional injuries. The patient's last treatment which included levomepromazine (300 mg/d), carbamazepine (600 mg/d) and diazepam (200 mg/d), was absolutely ineffective. Instances of physical aggression occurred almost every day and sometimes twice a day, and required immediate sedative injection and isolation. At the time of this observation, the level of aggression assessed on the OAS Scale (Yodofsky *et al*, 1986) reached 18.

Before starting the CPA treatment, the plasma testosterone level was within the normal range (5.2 ng/ml) as were the other plasma hormone levels (LH, prolactin, FSH, Δ4 androstene-dione).

In a first step, the CPA treatment was added to the former treatment at a daily dosage of 50 mg and slowly increased up to 200 mg daily His aggressive behaviour gradually decreased over a period of one month, making it possible to reduce the neuroleptic treatment down to 150 mg/day and to withdraw the carbamazepine and diazepine prescriptions. The level of aggression became 0 on the OAS. No significant change was observed in the plasma testosterone level.

This improvement was maintained for a period of four months. Then we decided to test if a reduction in the testosterone gonadal secretion (without affecting the androgen receptor level) would produce the same clinical effect. A monthly injection of a long-lasting LHRH analogue treatment was started and the CPA treatment was withdrawn after the second injection (gosereline acetate 3.6 mg monthly)

Whereas the testosterone level dropped to castration values (the 0.25 ng/ml remaining originated from the adrenal), the aggression score returned to its initial value fifteen days after the interruption of CPA treatment CPA had to be reintroduced in order to control the patient's aggression.

The beneficial effect of CPA treatment on aggressive behaviour could be explained either by its well known antiandrogenic effects or by its progestational properties leading to antioestrogenic effects. LHRH analogue treatment is devoid of progestational effects. With regard to the lack of clinical efficacy of LHRH analogue treatment, the antioestrogenic hypothesis seems more plausible.

Some preclinical studies suggest that, in fact, oestrogens could be more involved than androgens in aggressive behaviour. The level of aggression generated by non-aromatisable androgens is generally lower than those produced by testosterone (aromatised into oestradiol in the brain) or oestrogens themselves (Brain, 1977).

Additional studies on violent subjects are required to confirm the antiaggressive effect of CPA on non-sexual violent behaviour and to clarify this effect and the mechanisms involved.

BRAIN, P (1977) Pituitary gonadal influences on social aggression In *Hormones and Aggressive Behavior* (ed. B B. Svare), pp 3–25 New York: Plenum Press

OLWEUS, D., MATTSON, A., SCHALLING, D , *et al* (1980) Testosterone, aggression, physical and personality dimensions in normal adolescent males. *Psychosomatic Medicine*, **42**, 253–296

YUDOFSKY, S. C., SILVER, J. M , JACKSON, W., *et al* (1986) The overt aggression scale for the objective rating of verbal and physical aggression *American Journal of Psychiatry*, **143**, 35–39

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CORRIGENDUM

Journal, May 1991, **158**, (Suppl. 10), 85–86. The sentence beginning at the bottom of page 85 should read "Two decades on, we are similarly failing to acknowledge the presence of female perversions, including maternal incest."

A HUNDRED YEARS AGO

Discussion on Hypnotism in Dublin

Dr F. R. Cruise, one of the consulting physicians to the Mater Misericordiae Hospital, Dublin, who opened a discussion on hypnotism at the Royal Academy of Medicine in Ireland a short time ago, very candidly confessed that a year ago he was quite undecided whether the usual statements of the chief French observers of hypnotism "were either astounding facts or most audacious falsehoods", and, indeed, that if he had heard his own present opinions a year ago he would have been very sceptical about them. However, a visit to Nancy and Paris, and a short study of the cliniques of Liebeault, Bernheim, Luys, Auguste Voisin and Charcot, have convinced him "that hypnotism is a reality, and a great means towards cure, one which can never be crushed by ignorant and baseless criticism"; and "I believe", he continues, "that it is our duty, and our imperative duty, to do it justice, and rescue it from the hands of charlatans". He had been much impressed in Paris by seeing M. Auguste Voisin hypnotise an insane dipsomaniac girl whom, "by repeated hypnotism and suggestion M. Voisin cured not only of her mania, but also of her evil propensity"; and since his return from France, Dr J. J. Murphy had been equally successful on a case of dipsomania under his care. Dr G. C. Kingsbury followed with a clear speech explaining the methods and uses of hypnotism as practised at Nancy, some of which he had corroborated in England, and pleading that a fair trial should be given to the treatment. Of the twelve others who joined in the discussion, there were several who related cases of pain or morbid habits in which hypnotism had been followed by relief and improvement, and only one who objected to its employment.

Reference

British Medical Journal, 13 June 1891, 1299

Researched by Henry Rollin, Emeritus Consultant Psychiatrist, Horton Hospital, Surrey.

British Journal of Psychiatry (1991), **159**, 300–302

Books Reconsidered

General Psychopathology: Karl Jaspers
A Trainee's View

There is an apocryphal saying that in order to pass the membership examination of the Royal College of Psychiatrists, Jaspers' name should be invoked at some stage, preferably being followed by a comment as to the great significance of his *General Psychopathology* (Jaspers, 1963) and of how much is lost in translation. Underlying these sentiments is the suggestion that Jaspers is held by trainees in a mixture of esteem and uncertainty. Undoubtedly, although its importance is often stressed, the content of *General Psychopathology* is less widely known, with the length, complexity and discursiveness of the book making it an intimidating work to read and to understand. However, its position as the undisputed bible of phenomenology and psychopathology means it cannot be ignored. Shepherd (1982) reconsidered *General Psychopathology* in the *British Journal of Psychiatry*, and other articles testify to the continuing interest which the book arouses among eminent philosopher/psychiatrists (e.g. Spitzer, 1988; Walker, 1988). In contrast, this paper gives a trainee's perspective on Jaspers' work and is intended to be of interest to others who may be reluctant to approach it.

Apart from the literary style used by Jaspers, which is complicated even allowing for the complexity of the subject matter, the other initial obstacle which confronts a reader is one of terminology. This arises partly as a result of the diverse components which make up *General Psychopathology*, and partly because of varying meanings attributed to key terms and concepts used in discussions of Jaspers' work. It is possible to make certain clarifications in this regard which may aid understanding of the text.

Firstly, it is important to distinguish phenomenology from psychopathology. Phenomenology, the 'study of lived experience', is a philosophical school which investigates and gives primacy to 'things-in-themselves', in a way which avoids any preconceptions as to their nature or causation, and which undercuts the dichotomy between subjectivity and objectivity (Thines, 1987). Thus, when applied to psychopathology, it entails the unprejudiced description of abnormal mental states, excluding all aetiological and pathogenic considerations; thereby, phenomenology is not only a type of philosophy, but a method by which mental life is to be approached. Moreover, phenomenologists believe that true understanding arises from such an analysis, provided a sufficiently detailed and 'pure', theory-free study of this kind is carried out; it therefore requires an extensive inquiry into a patient's mental experiences independent of other aspects of their investigation. It is this phenomenological element which underlies the emphasis that Jaspers, and subsequently psychiatry as a whole, has placed upon psychopathology as a largely circumscribed and autonomous field. A second distinction arises between phenomenology in its original philosophical meaning, and that in which it is used in a Jasperian sense (Berrios, 1989). This difference occurs because Jaspers drew upon a variety of philosophical and other sources, and combined these with his psychiatric considerations to produce a hybrid brand of applied phenomenology (Kraupl Taylor, 1967).

In contrast to phenomenology, psychopathology has no philosophical pretensions, but is simply the description and clarification of abnormal mental states, which may or may not be carried out in a phenomenological manner. Jaspers, being both a philosopher and a psychiatrist, utilises elements of both, so that not only is *General Psychopathology* a detailed source book of psychopathology, it is also a philosophical treatise in which he colours these descriptions in a phenomenological way; hence the combined term of 'phenomenological psychopathology'. Finally, the meaning of 'psychopathology' must also be qualified. In a Jaspersian sense, it is equivalent to 'descriptive' psychopathology, and has no connection with 'dynamic' psychopathology (Kraupl Taylor, 1967). The latter focuses upon unconscious processes and their role in explaining conscious mental events, whereas Jaspersian phenomenology and psychopathology are restricted to conscious experiences and exclude explanatory hypotheses.

Put together, these elements produce a philosophical rationale and method which form the core of Jaspersian thought. However, the book does not proceed in any clear sequence of this kind, but consists of parts devoted to mainly philosophical matters, interspersed with descriptive passages defining and detailing psychopathological states. As a result, the best starting point from which to obtain an overview of Jaspers' work and goals is the introduction to *General Psychopathology* and its appendix, together with the article reprinted in the *British Journal of Psychiatry* (Jaspers, 1968). It is also helpful to be aware of the historical origins of phenomenology and other influences on Jaspers since they explain how he arrived at his particular stance (Berrios, 1984; Hundert, 1989).

Having highlighted some potential points of terminological confusion within *General Psychopathology*, we turn to an outline of its contents. One of the most important divisions made by Jaspers (both conceptually and in terms of the organisation of the book) is between explanation (*Erklären*) and understanding (*Verstehen*). The former refers to the logical, causally directed knowledge which arises from scientific study ; the latter is the empathic, subjective 'understanding' of a patient's experiences which results from the detailed phenomenological analysis prescribed by Jaspers. These two approaches are considered to be fundamentally different in their justification, methodology and end result, and an overall comprehension of a person's mental state requires both of these elements. Therefore, having outlined his philosophical and psychiatric position and given most of his classic descriptions of psychopathological symptoms in Part I, Jaspers details both the '*verstehende*' psychology of meaningful connections (Part II) and the '*erklärende*' psychology of causal connections (Part III), before putting these together to give a "conception of psychic life as a whole" (Part IV). The book later moves on to consider historical and social factors affecting the psyche (Part V). Only when all this has been accomplished can we tackle the "human being as a whole" (Part VI), at which point Jaspers becomes primarily philosophical – and particularly elaborate at times – as he discusses existential as well as phenomenological matters which are only of indirect relevance to modern psychiatric practice. Because of its arrangement, much of the essential text is concentrated in the early chapters, although the latter stages still contain important passages, such as Jaspers' critiques of Freud, Kretschmer, and Wernicke, and his contribution to classificatory schemes.

In what light should *General Psychopathology* be read by psychiatrists today? The distinctions drawn above are paralleled by a number of ways in which the text is and is not still valuable. First and foremost, it has never been equalled in psychiatry in terms of its breadth, depth or philosophical sophistication. Even if its philosophical position can, with the benefit of hindsight, be criticised, the very attempt to synthesise psychiatry with philosophy has proved to be an enduring and as yet unsurpassed one. Second, Jaspers' definitions of features such as delusions, pseudohallucinations, self-awareness and insight remain seminal, and he takes psychopathology to its limit in terms of descriptive detail and clarity of thought. Third, his emphasis on accurate empathy and recording of mental state as a foundation of psychiatry continues to be universally accepted, as does the importance of a detailed and 'meaningful' attempt at understanding a patients subjective experience; indeed, it is hard to conceive clinical practice without this central feature. Additionally, the Jaspersian focus on the 'un-understandable' nature of schizophrenics has been reflected in the question of the praecox feeling and the role that subjective impressions play in diagnosis and classification (Schwartz & Wiggins, 1987). Other important insights and clarifications made by Jaspers concern the distinctions between primary and secondary, organic and functional, and personality versus disease process, as well as the understanding/explanation dichotomy, which, in various guises, continues to be of interest (McHugh & Slavney, 1983; Schwartz & Wiggins, 1988).

Beyond these main areas, however, details of Jaspers' work may be of less relevance and permanence. From a philosophical perspective, phenomenology has always been controversial, and since Jaspers' time has diminished in acceptance; this has been due largely to the realisation that theory-free observation is in practice unattainable. In addition, the validity of Jaspers' adaptation of phenomenology to psychiatry has been criticised; moreover, the extent to which everyday psychopathological descriptions are really phenomenological or Jaspersian has been doubted (Berrios, 1984). Recently, the whole question of the nature of mental states and their position in contemporary neuroscience has been raised by the 'neurophilosophers' (P. M. Churchland, 1984; P. S. Churchland, 1986), a debate which may have profound consequences for all aspects of phenomenology and psychopathology, including the Jaspersian form (Harrison, 1990).

If we set aside the philosophical component of Jaspers' work, the question of its value becomes primarily a practical one: are there other descriptions and categorisations of psychopathological phenomena which are of greater utility or validity? Several

British Journal of Psychiatry (1991), **159**, 303–317

Book Reviews

Editor: Sidney Crown

Clinical Psychiatry for Medical Students. Edited by ALAN STOUDEMIRE. Philadelphia: J. B. Lippincott Company. 1990. 673 pp. £21.50.

This large textbook is written by the editor, an academic psychiatrist at Emory University in Atlanta, and no less than 45 other contributors. Eight authors are full professors, the rest are associate or assistant professors, the equivalents of senior lecturers or readers at a British medical school. In other words, the editor has gone for youth and enthusiasm.

The editor tells us that the book is based on a biopsychosocial model, derived from general systems theory. This model requires that equal emphasis should be given to the evaluation of biological, psychological and social factors. The first chapter deals with psychiatric assessment including history taking, the second, an excellent chapter written by the editor, with biopsychosocial assessment and case formulation. There follow chapters on the various psychiatric disorders, from organic disorders and schizophrenia to eating disorders and dissociative disorders, as well as chapters on psychosexual disorders, paraphilias and psychiatric disorders of childhood and adolescence. In general, there are very good accounts of aetiology and of general principles of treatment. Sometimes these chapters are a little weak in clinical description, perhaps because DSM–III–R criteria are given in full for every disorder. Two more chapters deal with psychological and biological treatment. The remaining chapters are clearly meant to fulfil the editor's aim of alerting the student to the psychiatric problems of non-psychiatric patients. Topics discussed include the recognition and management of psychiatric emergencies (including how to cope with violent patients), psychiatric aspects of medical practice (including psychological reactions to physical illness and its treatment), and sleep disorders (a very good chapter). A separate chapter deals particularly well with the psychiatric aspects of AIDS. There are also discussions of the basic principles of pain management and of behavioural medicine strategies for medical patients, written by a team from Brown University.

This is an ambitious book and the editor has managed to achieve a reasonable amount of unity despite the large number of authors. Most of it reads well and there are brief, well chosen bibliographies at the end of each chapter. Apart from its total reliance on DSM–III–R, the book does not betray transatlantic bias. I suspect that most British medical students would find the book too long to use as a basic text, but they should certainly be able to consult it in their libraries.

J. L GIBBONS, *Emeritus Professor of Psychiatry, University of Southampton*

SAQs in Psychiatry. By DINESH BHUGRA. Guildford: Butterworths. 1990. 152 pp. £9.95.

This small book provides a most useful adjunct to examination preparation. It is important for the examination candidate to be familiar with short answer questions in order to improve the chance of success in the MRCPsych Part II examination.

The author starts with a review of the examination contents and his suggested approaches to preparation. However, I was surprised to find that his format of chapter subdivision did not correlate with this list of contents. Indeed, some of the 'sciences basic to psychiatry' have been incorporated into the 'clinical topics', which could give rise to difficulties if the book is used as a revision aid for specific topics.

Other features of the book's layout were, however, well thought out. The answers to questions were easy to locate at the end of each chapter; the allocation of suggested marks for each subsection of a question proved useful (in spite of some misprints).

A particularly good feature of the book was the standard sought by the questions, which reflects that required in the Part II examination. Similarly, the sheer number of questions asked (294 in all) and the extensive range of topics covered, are excellent points.

There is a lack of precision in the wording of some questions, while the general meaning is conveyed. Unfortunately, there are not as many 'basic science' questions as there are 'clinical topic' questions; however, all the questions provide useful practice.

The author recommends reading lists and lists of 'seminal' papers which provide a useful source of information. I would certainly recommend this reasonably priced book as essential reading for psychiatrists embarking upon the Part II examination.

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Postgraduate Psychiatry: Clinical and Scientific Foundations. By Louis Appleby and David Forshaw. Oxford: Heinemann Medical Books. 1990. 531 pp. £22.50.

The aim of the authors was that this textbook would give postgraduate trainees, teachers and practising clinicians "a concise and up to date text of psychiatric practice and related topics". These goals have certainly been achieved, but the textbook particularly targets trainees who are studying for both parts of the MRCPsych.

The textbook follows a logical sequence, and is divided into sections which broadly correspond to the syllabuses of the two parts of the membership examination. There are three parts, 33 chapters and an appendix, written by 31 contributors, who were all, at the time of writing, members of the junior medical staff at the Maudsley Hospital, the Bethlem Royal Hospital or the Institute of Psychiatry. At the end of each chapter there is a short, relevant and up-to-date reading list The majority of the contributions are well set out, informative and easy to read. Some, however, are too condensed. There is also a certain amount of repetition, as is to be expected in any multi-author textbook, but this has generally been kept to a minimum.

Most trainees will find the contribution on Clinical Assessment in part one an excellent foundation on which to base their future history-taking skills and mental state examination. Descriptive psychopathology, an area of confusion for many trainees, was presented in clear and concise language. The section on descriptive psychopathology and functional anatomy, while adequate for revision, would require an initial broader base. I felt that the chapter on basic clinical pharmacology could have been merged with the later chapter on pharmacological treatments. No doubt it was presented in this way to accommodate candidates taking different parts of the MRCPsych.

The section which covered the non-clinical subjects (basic sciences) for the membership examination was 'fact packed' and would ideally suit the candidate who is rusty in this area and needs a good revision text. The short chapter on research methods and statistics should help candidates who heretofore avoided these questions.

Clinical psychiatry, including the subspecialities, was the largest section of the book. The dilemma of dealing with a large range of topics and trying to keep the text to manageable proportions was no doubt a problem for the editors and contributors. The contribution on schizophrenia, although containing a wealth of material, was brief and may have suffered because of this dilemma. Notwithstanding this, it would be appropriate revision material. The chapters on organic psychiatry, epilepsy and old age psychiatry should find favour with exam candidates, teachers and clinicians. The difficult subject of personality disorder was covered succinctly and the author is to be congratulated on including such a large amount of data in so few pages. I was glad that a chapter on psychiatric disorders associated with pregnancy was included as our US colleagues have abandoned this useful classification. There was a welcome and informative chapter on social, community and transcultural psychiatry.

In the subspecialities there was an excellent chapter on forensic psychiatry. The section on child psychiatry was concise but would require further basic reading. Treatment in psychiatry was the focus of part three. All treatment modalities were described and there was a particularly good section on physical treatments, especially ECT. The chapter on psychological treatments was comprehensive and well written but was spare in its description of behavioural techniques. The appendix will be welcomed by examination candidates as helpful hints are given about examination techniques.

Postgraduate Psychiatry is a well written and well planned textbook, which has a wealth of material that covers a broad range of topics, ranging from the basic sciences through clinical psychiatry to treatments. All psychiatrists in training should find this book an invaluable help in their studies, a source of information in their clinical management of patients, and a guide to further reading. Consultants and teachers of psychiatry will also find this a source of readily obtainable, up-to-date information and of great assistance in their teaching and clinical practice. There has been a need for some time for a textbook that would guide examination candidates in their study of psychiatry and I believe that this textbook has achieved that goal. Since receiving this book from the publishers I have consulted it on many occasions. This, I feel, is the acid test of the success of a textbook. How often, once purchased, will it be opened? I would recommend this textbook to all psychiatric trainees, and Consultant Psychiatrists, especially those involved in teaching. At £22.50 it is excellent value.

William J. Delaney, *Consultant Psychiatrist, St Dymphna's Hospital, North Circular Road, Dublin 7*

The Essentials of Factor Analysis (2nd Edition). By Dennis Child. London: Cassell Educational. 1990. 120 pp. £9.95.

The first (1970) edition of this book was a classic. It provided a generation of social scientists (including this reviewer) with a clear and non-mathematical introduction to the principles of exploratory factor analysis. Indeed, the book's only real shortcoming was a measure of its success – the binding tended to fall apart after repeated thumbing.

Twenty years is a long time in factor analysis. However, much of the text remains unaltered and some of the errors remain uncorrected. As a postgraduate student recently pointed out, anyone following Child's description of Cattell's Scree Test would consistently extract one more factor than the inventor of the technique! What is new is a mention of confirmatory factor analysis (although without cautioning for the necessity to ensure that the model has sufficient parameters fixed to ensure that the results are not arbitrary) and a general updating of the references. However this is not thorough. For example, there is no mention of modern techniques for determining the number of factors to be extracted, and among the "most common" methods of factor extraction and rotation, the centroid method, Holzinger's technique and Promax are still listed. All have been superseded.

This book maintains the clarity of the original, and many of its good points – for example, the discussion of simple structure and guidelines for reporting results from factor-analytic research (pp. 63–64). I know of no better non-mathematical introduction to the topic but now doubt that the book provides sufficient knowledge to allow researchers to actually go out and use the techniques described. At £9.95 for 120 small pages, students will complain that it is not cheap: there are some excellent alternatives for those with a little more mathematics which are more up-to-date and better value. But if you do not have the first edition, hate mathematics and want to learn about factor analysis, this is the book for you.

COLIN COOPER, *Lecturer, Department of Psychology, University of Ulster*

UCH Textbook of Psychiatry: An Integrated Approach. Edited by HEINZ WOLFF, ANTHONY BATEMAN and DAVID STURGEON. London: Gerald Duckworth & Co Ltd. 1990. 788 pp. £19.95.

The brand of psychiatry taught at University College Hospital, London, has proved enduringly attractive to a generation, even two generations of medical students. The confident assertion of psychodynamic theories in association with biological and social factors in mental and physical illness has proved a successful recruiting matrix for psychiatry. Much of the credit must go to Dr Heinz Wolff, whose enthusiastic teaching was a revelation to postgraduate trainees in psychiatry also at the Maudsley Hospital, many of them seeking refuge from the rigours and rigidity of medical membership. The textbook is an updated and expanded version of the UCH Handbook and is the last testament to the guiding hand of Heinz Wolff, who died shortly before its publication.

The first two sections: "History and Basic Principles", and "Personality Development and the Life Cycle" engage the interest immediately, although the next section, "Examining the Patient", is surprisingly lifeless. Shakespeare has honourable mention along with Freud, Klein and Winnicott in the Psychodynamic Section. The phenomena of psychiatric disorders are summarised clearly but perhaps too briefly in the chapter "The Mental State". Not all teachers would feel comfortable with the uncritical psychodynamic explanations given for many of the disorders discussed; biological and social aspects are not ignored, although they do receive less attention.

There are no less than 62 chapters, many of them only a few pages long, and all with clear sub-sections; this format should provide a useful device for reading and learning snippets at bus stops or between lectures. The punctuated result requires cross-references to other sections, and these are generally well indicated, which should make this book a guide to easy learning. It is bulky, however, even in paperback form, and a more presentable and transportable shape would probably be the A4 size of some other recent textbooks.

Short chapter topics cover useful areas such as Bereavement, Death and Dying, Disasters and Post-Traumatic Stress Disorder, Psychiatric Aspects of Epilepsy, Disorders of Impulse Control, Psychiatric Rehabilitation, and the General Practitioner. Brief accounts of modern concerns are provided under sub-headings Myalgic Encephalomyelitis, AIDS, and Sleep Disorders. The two chapters relating to the Law and Psychiatry contain a useful consideration of principles, but detailed information only on the Mental Health Act 1983 of England and Wales

The text refers constantly to published works, which recommends itself more to the postgraduate than the undergraduate reader. Most chapters have well chosen references to classic and recent publications. The authors seem not, however, to have decided on one target group. The preface mentions "Medical students, psychiatric trainees, general practitioners and other mental health professionals". I suspect general practitioners wanting a good working knowledge of psychiatry and the highly motivated and interested student may be the most satisfied. It is mostly up-to-date, although the speed of advance in the neuroscience information track has left some biological sections here trailing.

MARCUS WEBB, *Professor of Psychiatry, Trinity College, University of Dublin, Dublin 2*

Preventing and Controlling Drug Abuse. Edited by M. GOSSOP and M. GRANT. Geneva: World Health Organization. 1990. 130 pp.

This well structured, brief but seemingly comprehensive WHO publication consists of nine chapters of around fifteen pages each, with predictable and worthy titles such as "The problem of drug abuse", "Control of production, supply and availability" and "Planning and implementation".

It would be forgivable to anticipate a nouvelle cuisine feast of international wisdom and experience on the minimisation of harm related to substance use But what one gets instead, is a multinational corporation hamburger. It looks tasty but it is so bland that one hardly knows one is eating it and it leaves absolutely no aftertaste. In other words, the book neither satisfies nor equips the reader to feel more able to set about the implementation of preventive strategies at a local, national or international level.

Here are a few examples:

> "For large numbers of people, the mass media are their main source of information about drug practices This is especially true for individuals without personal experience of drug use It applies both to illicit substances and to many aspects of legal use. . . . The degree to which the media infuence drug-using behaviour is not yet known, and there are surprisingly few studies in this area " (p. 69)

> "The drug problem is not a temporary phenomenon. In addition its health and social implications have become so great that the health status and life expectancy of large social groups and the economy and politics of entire countries are deeply affected by it." (p. 95)

> "Strategies should be chosen which the community has the means and resources to implement. It is pointless to design programmes that cannot be properly implemented because of lack of personnel, infrastructure or material resources." (p. 122)

Verbose generalisations of this kind so pervade the book that one is left crying out for some examples of effective, practical applications of something preventive somewhere on earth. One gets just as much out of the mere fourteen pages on prevention (Chapter 10, pp 253–267) in Hamid Ghodse's *Drugs and Addictive Behaviour* (Blackwell Scientific Publications, Oxford, 1989) as one gets out of the whole of this book, and there is room even there for practical illustrations.

However, if one is looking for maxims to impress when next invited to talk to the local Women's Institute or Lion's Club meeting, one need look no further than this book. That's the problem with hamburgers: they have their uses!

DOUGLAS CAMERON, *Consultant Psychiatrist, Leicestershire Community Alcohol and Drugs Services*

Yearbook of Psychiatry and Applied Mental Health 1990. Edited by J. A. TALBOTT, A. FRANCES, R. FRANCES *et al.* London: Yearbook Medical Publishers. 1990 426 pp. £44 00.

"Your only choice for keeping up with current journal literature" reads the blurb inside the back cover, while opposite is a tear-out card to order inspection copies of any of the 33 volumes in the Year Book series. "Yes! I'd like to keep current. Please send me. . . ." But in the age of the literature database, is there a need for such books in order to "keep current"?

With the relentless proliferation of journals (98 are reported in this volume) it has long been impossible for anyone to keep fully abreast of all the literature by their own reading; instead, some guidance from experts has become essential – in the form of review papers on particular topics or in books such as this.

Here, what is described as the 'cream' of published articles has been selected by the editors, each a specialist in his field, into 10 chapters covering biological psychiatry, genetics and mental health, disorders of intelligence and learning, child and adolescent psychiatry, clinical psychiatry, psychotherapy, psychopharmacology, alcohol and drug abuse, law and psychiatry, and community psychiatry. Each chapter starts with an introduction, briefly (or very briefly) reviewing recent developments although some do mention a few review articles for further reading.

The number of papers having been pruned to manageable proportions, 420, they are reduced to abstracts roughly equivalent in size to the summaries in the original articles. Again, some loss of information is inevitable and the reader can only trust that the essence has been preserved – testable, of course, by reading the original!

Finally comes the critical evaluation of each paper, the most subjective and yet the most significant contribution of the editor. Generally speaking, the comments prove valuable in setting the paper within its context (sometimes giving references to other, related papers), highlighting some aspects, pointing out weaknesses in method and drawing conclusions. How well this can be done by one person is perhaps questionable – most journals (and authors) would not be happy with one assessor to judge acceptability for publication – but it would hardly be practicable to employ a panel for each chapter.

As far as this book is concerned, it does serve a useful purpose in presenting a broad picture of current psychiatric research in an easily digestible form – a book to be browsed through with benefit by trainee and trainer alike – although in view of the price, it is most likely to be the copy which should certainly be in every psychiatric library.

MICHAEL PRITCHARD, *Reader, UMDS Department of Psychiatry, St Thomas's Hospital, London SE1 7EH*

The Broader Implications of Ericksonian Therapy. Edited by STEPHEN R. LANKTON. New York: Brunner/Mazel Publishers. 1990. 85 pp.

"Milton Erickson" is a growth industry named after the American psychiatrist and authority on hypnosis who died in 1980. It has generated a plethora of books, conferences and training courses, not to mention a multitude of talking-head personalities whose pronouncements on the subject seem capable of filling any available space. Thus these monographs begin with a "position paper" of barely five pages, followed by no less than 34 pages of comments by eight "acknowledged experts". The initial article is by Richard Fisch, who complains that Erickson's work "has come to mean all things to all people". In Fisch's case "Erickson depathologized and, comcomitantly, demystified human problems". The author challenges the tendency of others to incorporate Erickson's 'techniques' into practices which are themselves based on models of pathology.

Following the discussion papers are three unrelated articles: Akiri Otani's concerns a patient whom Erickson helped cope with the pain and distress of terminal cancer by talking to him about growing tomatoes. Otani does a linguistic analysis of Erickson's monologue (which in fact in the original paper appears to be a retrospective summary). Highly technical, but the theory, based on the idea of covertly giving "appropriate suggestions to the unconscious" is mere candyfloss.

The pedantic psychometry of the single-case study is not everybody's cup of tea; nevertheless, William Nugent's report of his use of "Ericksonian hypnosis" with a woman experiencing relationship problems points one way forward. But from a detached viewpoint the therapist-client interaction appears absurd and requires firmer theoretical justification than rhetoric about "inner resources" and home-spun notions of "the unconscious mind".

The final article by John Gall is a description of ploys which may be used in paediatric physical examinations to elicit the child's co-operation and help him/her to feel comfortable or, as the author prefers to say, to be "in a comfortable frame of reference". My innocent impression is that it seems like excellent advice: but is it the products which are new, or just the labels? Are words like "Ericksonian", "trance", "utilisation" and "naturalistic" in therapy the equivalent of "natural", "green" and "environment-friendly" in today's supermarket?

These monographs may merit browsing through if you have half an hour to spare, but I cannot think why anyone should want to reserve them a permanent space on their bookshelves.

Michael Heap, *Principal Clinical Psychologist, Middlewood Hospital, Sheffield S6 1TP*

The Healing Bond: Treating Addictions in Groups. By Ronald Rodgers and Chandler McMillin. London. W. W. Norton & Company. 1990. 179 pp. £15.95.

This is a short, readable book which focuses on group treatment of those with problems due to drink or other drugs. It is based on an abstinence approach. The authors give a brief history of groups for problem drinkers in the United States of America, then after defining their terms, look at groups that do not work ("sticking to tasks") discussing why they do not adhere to such, then showing how groups can be nurtured and nudged into a work mode.

The authors put forward the thesis, based on their clinical experience, that addiction groups may not advance towards their treatment goal because the leader(s) and members are trapped in helplessness, hostility or vacuous optimism. Each snare is examined, with a route being put forward to avoid such group traps or to get out of their entanglement. Exercises are provided for practising leadership skills for the following: detoxification, 'step' discussion, after care, family process and psychological defences.

The natural history of opiates, stimulants and alcohol are considered as the basis for structuring task-orientated groups and avoiding the disadvantages of proceeding along a "mental health group" approach. Very clear guidelines are given here.

There is discussion of Alcoholics Anonymous as a self-help working group to which members can graduate as appropriate.

This is a challenging book which fills a gap on the group approach to treatment of addictions. I did not care for the swearing in the text and not all abbreviations were explained or obvious; however, I recommend it to all who use or may use a group approach for those with problems due to alcohol or other drugs.

Andrew D. T. Robinson, *Consultant Psychiatrist, Royal Cornhill Hospital, Aberdeen*

Neuro-behavioural Aspects of Multiple Sclerosis. Edited by Stephen Rao. New York: Oxford University Press. 271 pp. £35.00.

In a series of recent articles, Berrios and Quemada have outlined how changing perceptions of the relationship between psychiatric disorder and multiple sclerosis (MS) reflect overall perceptions of psychiatry. Thus during the somatic heyday of Victorian psychiatry, the principle concern was with dementia and MS. As the new psychotherapies grew in influence, this attention shifted to hysteria and MS, only to be replaced by more recent work on depression. The publication of this volume marks a new shift. "Organic psychiatry" has been under pressure to give way to the new schools of neuropsychology and behavioural medicine, which has led to the birth of a new discipline – "behavioural neurology" (note the final abolition of the psyche – the Victorians would have been pleased). Thus, twenty years ago this book would have been called "The Psychiatry of Multiple Sclerosis" – but no longer. My scepticism that the new title reflects fashion more than anything else is increased since the book is not a full account of the behavioural neurology of MS, as the extremely important area of sexual dysfunction, surely a neurobehavioural problem if ever there was one, is ignored.

MS has long been a fertile area for psychiatric research (as the book indicates by no fewer than seven variations on the theme of the original Charcot reference – perhaps an international conference could agree on the SCR, or Standard Charcot Reference, before the next edition). The topic is indeed important in its own right, since MS is by no means uncommon, and is often a chronic disease of young people with terrible morbidity. It is also a model for studying the interplay of organic (due to brain damage) and psychological (due to disability) factors in the production of psychiatric illness. Despite the long history of these studies, there has recently been a dramatic increase in the quality of such work as new imaging techniques have now been developed that give extraordinarily detailed pictures of the extent of cerebral damage in MS. Nevertheless, despite the fact that MS now offers some of the best opportunities for studying this relationship, it should not be forgotten that much of this information is of a general nature, rather than specific to MS. Some, but not all, of the contributors, acknowledge this by drawing on evidence from other cerebral diseases such as Huntingdon's disease or the stroke literature, but others miss the opportunity to shift the book out of its rather narrow constraints.

What is presented is generally of a very high standard. The book is conveniently divided into four sections. Clinicopathological features, Cognitive, Affective, and Treatment. Each section has a brief, informative introduction, by a different author. Unfortunately, this has added to the gap between the completion of the chapters that make up the bulk of the book and publication, with the result that some relevant recent studies are missing. All the sections are strong, but the otherwise excellent section on cognitive dysfunction is weakened by the rather heavy contributions constraining a full account of a brief follow-up study on neuropsychological functioning. The overall theme of this section is that it is cognitive and not affective changes that are one of the earliest and most sensitive indicators of psychiatric disability in MS.

A consensus on the role of psychiatric disorder is still elusive. For example, estimates of whether or not affective disorder is increased in MS differ from chapter to chapter. This book is a lucid account of the subject, well written and informative, but expensive.

Simon Wessely, *Senior Lecturer in Psychological Medicine, King's College Hospital Medical School and Institute of Psychiatry, London*

Clinical Applications of Cognitive Therapy. By Arthur Freeman, James Pretzer, Barbara Fleming and Karen M. Simon. New York: Plenum Press. 1990. 376 pp. £49.50.

This volume is a mixture of the old and the new in cognitive therapy. The first six chapters review and summarise cognitive behaviour therapy as applied to depression, suicide and anxiety disorders, with special chapters on assessment in cognitive therapy and a summary of cognitive behavioural interventions. Most of this will be very familiar to cognitive therapists.

Six of the remaining seven chapters contain new material, and address the problem of applying cognitive behaviour therapy to patients with personality disorders. There is one chapter on the treatment of paranoid, schizoid and schizotypal disorders, one on the treatment of antisocial personality disorder and narcissistic personality disorder, and separate chapters on borderline personality disorder and histrionic personality disorder. The remaining three chapters cover milder Cluster C disorders of obsessive–compulsive personality disorder, avoidant and dependent personality disorder and passive–aggressive personality disorder. Each chapter is organised to cover descriptive aspects, cognitive–behavioural assessment and conceptualisation, and specific cognitive behavioural intervention strategies and techniques. Cognitive conceptualisations of each disorder are generally clear, simple, and provide a coherent rationale for therapeutic interventions. Much is borrowed, with due recognition, from hard earned psychodynamic understandings of these patients, and described in a readily accessible form.

The application of strategies and techniques is illustrated with brief clinical vignettes that are, however, often rather limited and, to some extent, lifeless, and may, therefore, fail to give novice cognitive therapists a feel for the real difficulties, and the considerable technical skill and emotional resources needed to work with these difficult patients over a substantial length of time. This is particularly true for work with borderline and narcissistic patients where, rapid, fluctuating and intense transactions may easily overwhelm the unwary therapist and frequently preclude the application of standard cognitive therapy techniques.

Several common therapeutic themes run through these chapters. The therapeutic relationship takes centre stage with acknowledgement that therapy succeeds or fails, largely depending on how the therapist develops and maintains the therapeutic relationship. The necessity of developing a collaborative relationship to overcome the motivational deficits, interpersonal tensions and counter-transference feelings is repeatedly emphasised. Pre-eminence is given to behavioural, as opposed to cognitive, methods in the early stages of therapy to increase feelings of self-efficacy and to avoid the narcissistic traumas that exploratory interventions can provoke. There is substantial emphasis on social-skills training, problem solving, relaxation techniques and assertion training. Finally, the use of group therapy as an adjunct towards the end stages of therapy to improve social learning and increase interpersonal feedback is emphasised.

This volume is refreshing for its eclecticism, both theoretical and therapeutic. Its practical, problem-orientated approach, emphasising the importance of behavioural skills supplemented with an interpersonal focus on clarifying cognitive distortions, will find a wide appeal. Its studious neglect of the role of traumatic events in childhood in initiating and maintaining current patterns of maladaptive behaviour coupled with its neglect of the need for emotional processing in producing cognitive change will come as a disappointment to the more constructivist Cognitive Behaviour Therapists and psychodynamically orientated therapist.

NORMAN MACASKILL, *Consultant Psychiatrist, Whitely Wood Clinic, Sheffield*

Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind. Edited by WALTER REICH. Cambridge: Cambridge University Press. 1990. 289 pp. £27.50 (hb), £9.95 (pb).

Terrorism commands attention, and is frequently, whether associated with hostage taking or not, before us in the media. This book, which covers many aspects, is therefore of immediate interest. In relation to psychological studies on terrorists, it highlights particular difficulties of method. The researchers may be biased, as they are actually paid by the governments that are attacked, and the subjects are either under duress or are individuals who volunteer their own accounts, which are therefore not generalisable. Nevertheless, considerable research has been carried out, as this book informs us. For example, in West Germany where terrorism was a problem in the 1970s, 250 terrorists, many left-wing sympathisers, were examined. They revealed, rather than active psychiatric disorder, severe family pathology, and their personal histories showed under-achievement. However, as in other research, the question of appropriate controls has to be raised. One aspect common to many groups and not generally appreciated, is that of gain for the individual terrorist, especially in the international field. He may have direct access to heads of state, and a jet-setting life-style similar to those who engage in legitimate activities. Power, prestige, privilege and even personal wealth may result.

Group dynamics are discussed at length and it is emphasised that terrorist cells may be relatively isolated and this leads to strong internal forces which make for self-perpetuation. Such groups as ETA, Basque terrorists in Spain, and the IRA are examples. When shifts of policy within the governments under pressure occur, this is then countered by a similar alteration in the terrorists' demands. Nevertheless, on the optimistic side, the book indicates that movements in Germany and Italy, for example, have virtually ceased. On the other hand, as demonstrated from the historical context, earlier terrorists showed great interest in dynamite, and current studies suggest there is little doubt that if nuclear material could be obtained it would be used in terroristic ventures. The disordered thinking of terrorists is considered in detail, particularly 'moral disengagement'. This minimises the consequences of actions which become dehumanised, and blame is falsely attributed.

The editor, whose own contribution is notable, is to be congratulated on the selection of contributors, who emphasise, for example, the relatively recent growth in the Middle East of religious terrorism, and discuss in depth, hostage taking, as well as the cost and gain both on the part of the governments involved and the terrorist groups. Although the book is of an academic nature with references at the foot of almost every page, often with amplifying material, it is very readable, almost equivalent to journalistic accounts of single episodes or fictional works on the same theme. It is a disquieting but fascinating book, strongly recommended.

D. F. SCOTT, *Section of Neurological Sciences, Royal London Hospital, London E1 1BB*

Gender and Power in Families. Edited by ROSINE JOZEF PERELBERG and ANN C. MILLER. London. Routledge. 1990. 279 pp £12.99.

The stimulus for this interesting multi-authored book was the Second Conference on Feminism and Family Therapy held in London in 1987. Some of the chapters are revisions of presentations made at that conference, and a few have been published elsewhere. All but one of the authors did most of their clinical training in the United Kingdom where they continue to work. The book is concerned with some contemporary British feminist perspectives on family and group therapy.

The association between feminism and family therapy needs to be explained. Feminism regards the relationship between men and women as being fundamentally unequal, and states that women are disadvantaged because of men's control of resources and their articulation of the dominant view of the world. Feminists working in the field of family therapy and other psychotherapies have become aware that the theory and practice of the psychotherapies may reinforce these inequalities, and so perpetuate women's subordination This is true of systems family therapy, which has tended to deny the importance of inequalities. An example from family therapy is calling mothers overinvolved with their children, and so implicitly criticising the mothers, when their concern is partly a response to the fathers' refusal to share child care.

While all the contributors to this book accept that there are inequalities in gender relations, they vary as to how they think this awareness should be used in family therapy Some authors, such as Urry and Schneider, believe that this inequality should be challenged directly in therapy. Others such as Perelberg quite reasonably argue that this could lead to the colonisation of the family, because family members will be expected to learn the therapist's view of how gender relations should be. This diversity of opinion is part of the richness of the book. It shows that feminist family therapy, like all psychotherapies, is heterogeneous.

Particularly interesting chapters are by Perelberg, who provides a theoretical psychoanalytic and social anthropological background to gender relations, and Gorell Barnes who writes on gender, work and family relations. Heavey gives a well worked-out account of how gender roles and "intelligence" can be inter-related. O'Brien's contribution on gender differences in help-seeking and participation in treatment shows how empirical studies can be used within a feminist perspective

This book will be very useful to family therapists and many others interested in gender relationships. The book is well laid out and there is a subject and author index, so those who want to find a particular topic will find it easy to do so. The issues discussed in the book will become increasingly important over the next few years, and the book should be widely read.

MATTHEW HODES, *Senior Lecturer in Child & Adolescent Psychiatry, St Mary's Hospital Medical School, London NW10*

Further Learning from the Patient: The Analytic Space and Process. By PATRICK CASEMENT. London: Routledge. 1990. 197 pp. £25.00 (hb), £9.00 (pb).

This book is a sequel to Casement's earlier *On Learning from the Patient* (1985). Unlike many sequels, it shows no signs of trying to imitate an earlier success, but is a genuine continuation of the same exploratory impulse.

Casement's theme in both books is the need for analysts and psychotherapists to be open to the continual novelty of the patient's communication. His chapter-titles – "Beyond dogma", "Interpretation: fresh insight or cliché?", "A child leads the way", etc. – well convey the flavour of the book, which distils its insights from richly detailed clinical description. One chapter, on "Unconscious hope", introduces a key notion which is surprisingly absent from the existing literature.

He shows an admirable willingness to report his own uncertainties and mistakes, and his attentiveness to the detail of the patient's response makes it possible, very often, to correct them. He emphasises that stereotyped thinking can easily govern interpretation, for example, about lateness, silences, holiday breaks, or "the notion that everything in a session should be interpreted in terms of the transference", and the unresponsiveness of patients to such interpretations may not always be resistance but an attempt to reach a more living form of communication.

One of the most attractive chapters in the book is entitled "A child leads the way". In it, we are shown Casement's first, very tentative, attempt to work with a 6-year-old girl. He was officially seeing her to give her reading lessons, but it gradually became more and more apparent that she would only learn to read if, in classic analytic style, the blocks were lifted on her sexual curiosity. Touchingly and rather beautifully, Casement shows how she pushed him to overcome his own reticence about giving her the sexual references she needed.

Few analysts convey better than Casement the actual feeling of work in the consulting room. His non-dogmatic but rigorous attention to the total communication of the patient represents what is best and most convincing about modern psychoanalysis. His book will be of particular value to trainees in the psychodynamic professions, but will also be refreshing to more experienced practitioners.

DAVID BLACK, *Lecturer, Westminster Pastoral Foundation, London*

Somatisation: Physical Symptoms and Psychological Illness. Edited by CHRISTOPHER BASS. Oxford: Blackwell Scientific Publications. 1990. 339 pp.

Patients who present with physical symptoms in the absence of organic pathology have always created problems for doctors, both in their diagnosis and management. In recent years this area of somatisation has not been aided by confusing attempts at classification and sometimes dubious theories as to their origins. Dr Bass and his contributors in this new book have successfully attempted to throw light on this perplexing subject and I feel there are few psychiatrists who will fail to gain considerably from reading this book.

After an introductory chapter, there is a useful review of difficulties in classification which demonstrates that even today's current diagnostic categories are not adequate to neatly include all patients with somatiform disorders. Dr Bass provides a chapter on assessment and management of functional somatic symptoms which is of considerable importance as it involves skills and techniques that are sometimes different from routine psychiatric practice. He makes some helpful points on general principles of managing these very difficult patients.

The remainder of the book is divided into chapters describing somatiform disorders presenting in particular ways. One chapter is devoted to somatisation in primary care settings and reminds us that many such patients presenting to General Practitioners are suffering from a depression requiring proper assessment and treatment. The chronic somatiser referred to hospital clinics may be a more intractable sufferer, and the other contributors discuss ways such patients present, the potential causes and management of them. The chronic fatigue syndrome discussed by Dr White is of considerable relevance bearing in mind the number of patients who now consider themselves to suffer ME syndrome with little supporting evidence. Other areas covered include functional abdominal pain, cardio-respiratory symptoms, gynaecological complaints, pelvic pain in women, and dermatological conditions. Dr Toone contributes a chapter on hysterical conversion and it is perhaps a sign of the times that a book entirely devoted to somatiform disorders only has one chapter relating to the old concept of hysteria and even that seriously questions the theoretical concepts that many of us were brought up on.

The final chapter sums up the diagnostic and management difficulties of this group of patients and shows that although the full-blown syndrome of somatisation disorder may be rare, there are many people with somatic symptoms who do not achieve the full diagnostic criteria but nevertheless take up a considerable amount of medical time. Too often in the past these chronic somatisers have frequently become the problem patients for both physicians and psychiatrists and have engendered considerable antipathy towards themselves. I feel this book will help most of us view this group of patients in a more positive light and be more willing to try and engage them into therapeutic interventions that could be of considerable benefit to themselves, their families and the health care systems as a whole.

I congratulate Dr Bass and his colleagues on presenting such a well thought out and readable book, and I strongly recommend all psychiatrists to read it.

CHRIS THOMAS, *Consultant Psychiatrist, County Hospital, Hereford HR1 2ER*

Verwoerdt's Clinical Geropsychiatry (3rd Edition). Edited by DAVID BIENENFELD. London: Williams and Wilkins. 1990. 313 pp. £35.00.

This is the latest edition of a text first produced in 1976 which is intended for "General psychiatrists, Residents, fellows and primary care physicians".

It is divided into three sections – normal ageing, the psychopathology of ageing, and treatment of the ageing patient. It therefore gives a useful background to the care of the elderly psychiatric patient. Inevitably, as it is an American publication, it is written from a US perspective, very much aimed at private practice with the availability of ancillary staff, and with litigation in mind. It also uses the DSM–III–R classification of disease exclusively, and drugs are mentioned which are not available in the UK.

The fact that there are 18 contributing authors leads to a certain amount of repetition, but overall I found it easy to read and informative. The most disappointing chapter was "Evaluation of the Elderly Patient", which lacked a clear focus and included reference to financial arrangements. The book does, however, have many good features. There are useful tables on the characteristics of antidepressants and antipsychotic medications, and good chapters on substance abuse and sleep disorders. The section on treatment is particularly useful in its overview of psychotherapy for the elderly as well as its detail on the pitfalls of pharmacotherapy.

I found the chapters on in-patient care, liaison psychiatry and assessment in the nursing home also of interest, but with this area of the world in mind there is a distinct lack of discussion on community and social supports. No book on psychogeriatric care can ignore the contribution of carers and their need for support, and the book gives this aspect a very small space.

However, it achieves its declared aim of presenting the humane aspect of care of the elderly as well as the clinical side. At £35.00 it is not cheap but would be useful to registrars in old-age psychiatry as an introduction to this expanding field of work.

JOYCE PICKETT, *Consultant Psychogeriatrician, St Ita's Hospital, Portrane, County Dublin*

A Heart of Wisdom: Marital counselling with older and elderly couples. By MARY ANN WOLINSKY. New York: Brunner/Mazel. 1990. 272 pp. $26.95.

The dramatic increase in the number of elderly people in the community has focused the attention of a wide variety of disciplines on the needs and problems that accompany the ageing process. Psychotherapists, on the whole, have been slow in offering their services to the elderly, marital therapists being no exception. Rigidity of attitude, lack of motivation, and incapacity for further growth have been cited as reducing the likely benefits of a psychotherapeutic approach to older patients.

Mary Ann Wolinsky, however, in this book argues forcibly for the provision of marital therapy for older couples. Introspection, re-evaluation, and reminiscence, she states, are part of the normal psychological process in later life which make this a natural and pleasing group to work with. Before introducing her model of marital therapy she discusses the experience of growing older in modern America in the context of the changes in family life styles that have taken place there in recent decades. There is a particularly good chapter on the mature-stage marriage which clearly defines the prominent issues that arise for all couples at this time.

She proposes a developmental marital therapy model. This is chiefly a systems theory model but also reflects psychodynamic and life cycle theories. Four stages from evaluation to termination are described. The evaluation process makes use of the "Marital Life Review", developed by the author, although similar in approach to the "Life Review" identified by Butler in 1963, Stage II uses a variety of treatment techniques including insight-orientated therapy and grief counselling. The latter looks back to real losses and forward to anticipated losses, e.g. loss of income and health. Stage III promotes change, identifies strengths and explores future options.

Part 2 of the book, using case examples, discusses in greater detail the model and its application, while Part 3 focuses on the special issues and problems in psychotherapy with older people. The variety of transference and counter-transference reactions are explored.

This book will undoubtedly help to deal with the challenge of late life marital distress. However, its style appears aimed more towards those already involved in marital therapy than the psychiatrist working within the confines of a public health service. It deserves inclusion on the library shelf of a well equipped multidisciplinary unit.

CORNELIUS KELLY, *Senior Registrar, Department of Psychiatry, St Mary's Hospital, London*

The Creative Process: A Functional Model Based on Empirical Studies from Early Childhood to Middle Age. By GUDMUND J. W. SMITH and INGEGERD M. CARLSSON. Madison: International Universities Press. 1990. 239 pp. $35.00.

My expectations from the title were immediately challenged, as it has both a wider and a narrower focus than just artistic endeavour.

The authors define creativity as a generative or productive way of experiencing reality and place the process within the psychology of perception rather than cognition. They study this process with an experimental design of a gradually prolonged presentation of a visual stimulus by a tachistoscope moving towards a recognisable image and then reversing the process. The hypothesis is that as the image becomes more recognisable, it tests the flexible representation of the visual world, and the reverse test explores the ability to free oneself from objective reality and use imaginative interpretations. They understand creativity as requiring the need for communication between these two functions.

To overcome the narrowness of this empirical model they built up a network of interviews and assessments of a wide range of subjects of different age groups, sexes and abilities to validate it.

They found that children have two peaks of creativity, within their definition, of five to six years and 10 to 12 years and they find no evidence that school can be blamed for a loss of creativity in young children or that adolescence is a period of high creativity. They also find that creative people can tolerate anxiety-provoking imagery from their inner world and can handle perceptual contradictions flexibly by facing threats in an active way from early childhood.

There is some experimental evidence in their tests that creativity is blocked by obsessional defences, depression and uncontained anxiety.

Creativity in this book is a more active process than Kris' definition of "regression at the service of the ego" and creative individuals need to be able to tolerate the ambiguity of their perception and to be willing to deviate from formal logic and use their personal experience and early memories, as well as present reality, to generate new hypotheses.

After early misgivings, I ended up intrigued by some of the ideas about imaginative thought generated by what seemed like an over-simplistic laboratory method, and the possibilities it raised for testing and validating some psychodynamic ideas.

RACHEL LEHEUP, *Consultant Child and Adolescent Psychiatrist, Nottingham*

Overcoming Difficult Behaviour. By JOHN L. PRESLAND. Kidderminster: BIMH Publications. 1989. 342 pp. £19.95.

This book is described by the author as a practical guide dealing with problem behaviour in the severely mentally handicapped; it is hoped that it will be used by anyone who lives or works with severely mentally handicapped person(s), including parents, volunteer workers, psychologists, nurses and doctors. It is meticulously written and in great detail – an elementary knowledge of psychology is necessary, however, to understand the techniques and terms used.

Part A defines 'problem behaviour' and describes the application of behavioural analysis. Part B describes the planning of an intervention programme, and measurement of its success. Part C describes how the above measures can be applied to specific behavioural problems, such as self-injurious behaviour, stereotyped behaviour, violent behaviour, pica, rumination of food, encopresis, enuresis, etc. There are numerous case history illustrations, with application of the behavioural approach outlined.

Part D describes the preparation, training and supervision of individuals involved in carrying out these interventions with emphasis on maintenance of staff morale. There is an excellent chapter on ethical problems. There is also a very useful chapter with addresses where devices and aids described in the text can be obtained.

This is a behavioural guide for the management of problem behaviour in the severely mentally handicapped. It provides a concise and structured approach which can be adapted for use in a variety of problems. It is sensitive and practical and is recommended.

MARY KELLY, *Senior Registrar in Mental Handicap, Dublin*

The Neurotic Child and Adolescent. Edited by M. HOSSEIN ETEZADY. New Jersey: Jason Aronson Inc. 440 pp. $50.00.

This is not an easy book to read and even when I reached the end I had to struggle hard to see what I had gained from my effort. It is a multi-author test and there is certainly a lot of overlap between the chapters. But something else adds to the repetitive flavour. I think that its almost entirely Freudian perspective deprives the reader of much of the richness offered by advances which have been made by other schools of child development, child psychiatry and child and family therapy. Somehow even the case material fails to bring the book alive. This is a pity as it leaves one feeling that the book is rather dry and theoretical and has little connection with one's clinical work.

The book consists of 18 chapters, which are grouped into 3 sections. The section on therapeutic issues was of the greatest interest to me. The chapter on the fantasy world of the child serves as a useful outline of how play and dreams are used in child therapy. Esman's chapter, "Neurotic Children in the Light of Research", provides a valuable summary of the impact of research on psychoanalytic thinking.

What did I gain from reading this book? Basically I have a much clearer understanding of where American child analysis is "at", even if it hasn't inspired me to be there too!

Who should read this book? I don't feel that I can recommend it to other trainee child psychiatrists. I feel that the senior registrars' needs are better met by books which give a very clear picture of what psychotherapeutic work entails. Detailed case material helps clarify the therapeutic process and, once this context is provided, theoretical discussions add to one's understanding There are multi-author texts written by British child psychotherapists which manage this task well. For professionals with a particular interest in child analysis this book does provide a comprehensive summary of the modern Freudian view.

LINDA ZIRINSKY, *Lecturer in Child Psychiatry, Royal Free Hospital, London NW3 2QG*

Melanie Klein Volume 1: First Discoveries and First System, 1919–1932. By JEAN-MICHEL PETOT. Madison: International Universities Press. 1990. 313 pp. $40.00.

Melanie Klein did not pull interpretations out of a hat (as some psychiatrists are prone to think on first reading her work), but all is not quite as it appears. In fact, we now know that her ideas about the development of mental life were derived as much from the intimate psychological exploration of her own children, as from any observations made in the consulting room.

Jean-Michel Petot first published this book in Paris 12 years ago, and guessed that the little Fritz of Klein's early papers was none other than her son Erich. Since then, Grosskurth has produced a substantial biography and confirmed the equation. In a letter to Ferenczi dated 14 December 1920, Klein writes "If the change from 'Erich' to 'Fritz', and from 'I' to 'the mother' is applied throughout the study, I think the disguise will be perfect". This is not surprising, and it is clear that her interest in psychoanalytical ideas combined powerfully with the absorbing interest of a mother in her child's development.

Klein was a free thinker, determined to give frank answers to her children's questions. However, she soon discovered that her own atheism, her husband's belief in God, and the stark facts of life, caused the five-year-old Erich to draw down a veil of obscurity and avoid further discussion of such matters. Nonetheless, Klein observed, through making up stories together, that she and her son could engage in an exciting venture which covered the same ground in a way that delighted the child. She had come upon a door into the interior world of fantasy, which was to result in a profound elaboration of psychoanalytical theory and practice.

Competitive rivalry with one parent for the love and attention of the other, which according to Freud lay at the heart of child development and gave rise to processes of internalisation and identification, Klein detected in early infancy. She emphasised the infant's own contribution to the construction of threatening figures, through the mechanism of projection, and its subsequent attempts to render such figures benign, through reparative fantasy. While paying lip-service to Freud's energetics, her own theoretical interests moved inexorably away from the vicissitudes of libido, towards an investigation of the meaning of symbols.

The publication of this book in English translation, more than a decade after it originally appeared, clearly reflects the changed climate of opinion in the United States, where reading Melanie Klein was wont to be regarded as an 'Unamerican Activity'! Unfortunately the translation is bad, which makes reading hard work, for example

> "We should then have to go through the successive stages of what might be called her doctrine, indicating as we go what is merely an approximation of an idea that will appear fully only later, what is a stable and definitive acquisition, and what is held or simply considered only to be given up in short order "

Petot's book is not for the faint-hearted, but the serious student of psychoanalysis will forgive its faults.

STEPHEN WILSON, *Consultant Psychiatrist and Clinical Lecturer, University of Oxford*

Healing Hurt Minds: The Peper Harow Experience. By MELVYN ROSE. London and New York: Tavistock/Routledge. 1990. 210 pp. £12.99.

There is a valedictory tone to the writing of this book in places. Melvyn Rose charts the 20 year history of Peper Harow as a therapeutic community for adolescents. He was the director from the start and this is very much a director's history. He describes the beginnings in the 1970s of the effort to shift the institution from approved school to therapeutic milieu, clearly fuelled by the excitement, iconoclasm and therapeutic idealism of the 1960s, against the important background of support from a number of psychodynamic psychiatrists. The project thrived and I can think of no better description of the pains and pleasures, doubts and passions of being part of the development of such a difficult enterprise than this one by Rose. It is his tone which gives great pleasure, neither idealising nor excessively modest, and there is a very real sense of the life lived.

New concerns creep in as the eighties are reached: the increasing pressure of curriculum is described and in an interesting but perhaps too brief passage, Rose discusses the issue of the diagnosis of specific problems, such as learning difficulties, in the young people, and he wonders whether a more thorough assessment of his charges might not have aided treatment and prevented some premature leavers.

The valedictory quality is explained when Rose reports how he left in 1983 and the community for a while appeared to lose direction. The book ends somewhat in the air because of this, although the recent opening of a similar community for younger children is described This book needs to be taken as a history on its own terms, there is no attempt to see this way of working in relation to other developments in treatment settings for disturbed adolescents; rhetorical rather than scientific principles are used to legitimise its practice. It is a fascinating and enjoyable history to read, but I was left wondering what new transformations will be necessary for such an institution to thrive into the future. Given that it represents a powerful and persuasive trend in the humane response to adolescent difficulty; what should its relation be to the health-service based adolescent psychiatry units of the nineties?

J. Green, *Consultant Child Psychiatrist, Booth Hall Children's Hospital, Manchester M9 2AA*

Behavioural Gerontology: Central Issues in the Psychology of Ageing. By D. B. Bromley. Chichester: John Wiley & Sons. 410 pp. £49.95.

The author has undertaken a considerable task in writing this book The title gives the impression of a rather turgid piece of writing; however, this is not the case. The book introduces the concept of behavioural gerontology as being something of an interface between gerontology and psychology. He uses this concept to develop a framework for approaching various issues in ageing. It is unfortunate that the first chapter is rather heavy going, as the following chapters are certainly worthwhile reading. This first chapter acts as an introduction to the development of the concept of behavioural gerontology and its difference from other branches of psychology, gerontology and social sciences. Although the terminology of each of these is well defined there is, not surprisingly, some overlap between them and as a result some confusion in the reader. The different concepts do become clear in the subsequent chapters. Other issues central to ageing, e.g ethical issues, are introduced but are not expanded upon.

The other chapters can be dipped into and read individually but are more useful if read within the context of the book as a whole. They are all interesting and, for the psychiatrist, provide a different but valuable guide to the assessment, and some of the processes of, normal ageing. The book makes special reference to depression and dementia in several chapters. The assessment and treatment of dementia was covered in depth with particular reference to behaviour management in both continuing care and residential units, and the home.

Of the eight chapters, I found two of particular interest. The first concerns "adult ontogenesis". This extrapolates the theories of individual child development into adulthood and then onto not only the young elderly but the old and very old. The author compares the simple stage approach of Erickson with a complex sequence approach in which ageing is seen as a series of "behaviour episodes" and combines the two to produce an "adult life path". This life path would be influenced by life events and the author proceeds to review the research and literature on life events and its significance in ageing.

The other excellent chapter discussed motivation and emotion and the changes associated with ageing. It also approached the assessment and aspects of management of emotional maladjustment as well as discussing the positive aspects of affect in later life.

The chapters on memory, methods, clinical psychology, intelligence, and psychometric testing are equally well written and relevant to those working with the elderly.

The book is supported by up-to-date references throughout. The content of this book provides an approach to ageing that is not only interesting and thought provoking but I feel offers, for psychiatrists, particularly those working with the elderly, a slightly different but valid insight into certain aspects of ageing. It is unfortunate that the price would make it more of a valuable addition to a psychiatric library than an individual's bookshelf.

Vicky Banks, *Senior Registrar in Old Age Psychiatry, Barrow Hospital, Bristol*

Stressors and the Adjustment Disorders. Edited by Joseph D. Noshpitz and R. Dean Coddington. New York: Wiley-Interscience. 1990. 693 pp. £55.15.

Described in the sleeve notes as a "near-encyclopedic coverage of common sources of stress", this is a rather disappointing litany of disasters and traumas. It includes chapters on measurement, parental death or divorce, illness, developmental stress, natural disasters, human violence, social traumata, vulnerabilities, protective factors, adjustment disorder, prevention and intervention.

Many of the 50 contributors offer good reviews, and I particularly liked the developmental perspective included in many of the chapters; but, inevitably, there is a good deal of repetition as different stressors are discussed. Moreover, the contrast between different chapters is less than it might have been had a multicultural world view been taken. For example, I could find no mention in the book or in the index of the millions of people who have survived organised state violence including torture. In the chapters on "Forced Displacement" and "Geographic Change", the 12–15 million refugees in the world today were not considered. In another chapter, the author bemoans the fact that as racism and other forms of prejudice and discrimination are not "hot" topics for study in the USA, and as it is a topic for which politicians are not "ready", there is little current research in this field.

As a reference book, in which individual chapters might be consulted in a library, this book has some value. However, it is not likely to find its way onto the bookshelves of many non-American psychiatrists.

STUART TURNER, *Senior Clinical Lecturer in Psychiatry, Middlesex Hospital, London W1N 8AA*

The Mirages of Marriage. By WILLIAM J LEDERER and DAN D. JACKSON. New York, London: W. W. Norton and Co. 1990 473 pp. £7.95

The authors start with the premise that a number of assumptions underlie an understanding of marital relationships, that these are anachronistic and unworkable, and need to be challenged and exploded. Once these "mirages of marriage" have been recognised as illusory, couples will be freed to create their own workable union.

The book is written partly in the form of a self-help manual, and has four aims: to diagnose the maladies of modern marriage; to show ways of diagnosing problems, and how to seek professional help if required; to suggest ways of resuscitating ailing marriages; and to show how to recognise and deal with dead marriages.

The theoretical framework is a systemic one which recognises the interactive processes operating in all human relationships. The authors point to the unconscious element in partner choice and for the need for this level to be addressed when diagnosing and dealing with problems. They argue that if therapists are serious about working with marriage, both partners have to be seen together. In an interesting short chapter they outline the limitations of working with only one partner, and even with both but separately.

The book is in five sections. In the first, a number of false assumptions about marriage are discussed. These include "people marry because they love each other", "if you can tell your spouse to go to hell you have a poor marriage", and "loneliness will be cured by marriage". In the second part, the internal working of marriage is addressed including communication, sex, trust and different styles of relating. In the third part, destructive elements of interaction are identified; suggestions for how to deal with these are given in the fourth part. In the final section, issues related to professional help are discussed.

Overall, there is a lot of common sense and wisdom in the book. Respect, tolerance and emphasising the strengths of the relationship are seen as essential in creating a good marriage. The need to work at the relationship is emphasised and a reminder is given that no marriage is free of some friction and difficulties. The authors point to the necessary tension between a shared sense of equal worth and a complementarity whereby each partner, at different times, is able to take a lead role in various aspects of the couple's shared life.

However, the book is rather irritating to read – for a number of reasons. There is an idealisation of the marital state which produces an understatement of its complex nature. Although acknowledging the unconscious elements in partner choice, the authors write of marriage as if it were something outside the two people involved and can therefore write a chapter on "how to choose a spouse" and recommend regular "marital check-ups".

The book was first published in 1968 and some of its ideas are now rather dated. The first publication also predated some of the major social changes that have occurred in the nature and variety of intimate relationships and our awareness about marital relationships. Does anybody now really believe that "most married people love each other" or that "the advent of children automatically improves a potentially difficult marriage". These hardly need a chapter each to be disproven. In fact, it is difficult to believe that they warranted such lengthy discussions even in 1968. Even those who accurately point out our illusions may themselves see mirages.

STANLEY RUSZCZYNSKI, *Deputy Chairman and Senior Marital Psychotherapist, Tavistock Institute of Marital Studies, London NW3 5BA*

Community Psychiatric Nursing: A Research Perspective. Edited by CHARLES BROOKER. London: Chapman and Hall 1990. 303 pp. £14 95.

This book is aimed at nurses and mostly written by nurses about their research. Readers of this journal will find the style discursive and some of the overlong literature reviews betray their origin in dissertations.

What would a psychiatrist learn from this book? If you wish to find out what CPNs do, or more specifically what they can do that other professions cannot, you will probably be disappointed. It is noted several times that the early expansion of the CPN Service coincided with

Social Work becoming generic, with the implication that the CPNs took on much of the work of Mental Health Specialist Social Workers. There are papers trying to define a specific CPN role in relation to carers, families and clients. Figures on the referral sources to CPNs show that the later expansion of this service has generated an increased proportion of direct referrals from general practitioners (GPs) although without any evidence of reduction in overall number of referrals from psychiatrists.

This search for a role in the newest of the psychiatric professions is the theme underlying, even if covertly, most of the papers. It is a theme that will become more acute as Social Workers return to specialisation, and as the distinctions between health care and social care need to be more clearly defined.

Currently, mental health units are funding much CPN time in GP's surgeries. The paper by Illing *et al* looks at this and discovers, not surprisingly, that easier access to the CPN brings more referrals. Unfortunately they did not have data as to whether this resulted in a change of referral patterns to psychiatrist out-patients so the question as to whether the CPNs are attracting new work or diverting old remains unanswered.

Research by Wolsey in the early 1980s looks at the work of CPNs with schizophrenic patients. These patients were 50% of their caseload. Only around half the CPNs were aware of the research work on expressed emotions and only 20% had had any training in family therapy. The most popular CPN course (nearly 50%) was non-directive individual counselling.

Other papers look at a CPN working with overdosers, a computer database, an out of hours service, the value of training, and the influence of psychiatrists on CPN service developments (mostly negative!).

Not a book for one sitting, but worth dipping into.

SAM BAXTER, *Consultant Psychiatrist, Charing Cross Hospital, London W6*

Key Topics in Brain Research: Alzheimer's Disease. Epidemiology, Neuropathology, Neurochemistry and Clinics. Edited by KONRAD MAURER, PETER RIEDERER and HELMUT BECKMANN. Basel: Springer-Verlag. 1990. 582 pp. DM176.

The 125th anniversary of the birth of Aloys Alzheimer in 1989 was celebrated around the world with conferences and symposia devoted to the disease that bears his name. The proceedings of these events are now appearing in book form, which provides us with a useful opportunity to assess the present state of the 'Alzheimer industry'. This book derives from a large, international symposium organised by the psychiatry departments of Würtzburg and Munich Universities, and the departments of neurochemistry and pathochemistry at Heidelberg. Not surprisingly therefore, the contents are biased heavily in favour of the marvels of contemporary neuroscience, with only three out of 65 chapters on epidemiology, and one on aspects of care. In this respect, it is clearly not representative of the totality of research into dementia; indeed, it is a revealing testament to the gulf that still exists between neuroscientists, and epidemiologists and service providers.

Proper care is taken over the case definition of Alzheimer's disease, with validated operationalised diagnoses, exclusion criteria and so forth, but just how representative are those patients who are admitted to hospital or come to post mortem? For example, are the monoaminergic deficits observed in Alzheimer's an integral part of the disease process, or are they associated with features such as the disturbed mood and behaviour that often bring cases to the attention of the health services and researchers? Until such possible selection artefacts are identified and controlled, we should be careful about any conclusions we draw from this evidence.

Another issue raised by this book is the status of Alzheimer's disease as a neuropathologically-defined unitary disorder. Alzheimer himself discussed its possible heterogeneity in his 1911 paper, but its political impact as 'the disease of the century' in recent years has tended to obscure this. As one group of authors points out here, this approach has been extremely beneficial in advancing the status of patients and in attracting research funds, but by emphasising single causes and single cures it has also hindered the appreciation that the neuropathological picture is probably a final common end-point for a range of aetiological mechanisms. In this book, discussion of the various causal theories is limited, but there are signs that the message is being taken on board by neuroscientists. Incidentally, the reader with an interest in transmissible causes of dementia should not be excited by the reference to 'plagues' in the index – this is merely an unfortunate misprint!

This book is an interesting if rather uncritical collection of dispatches from the front line of research into this problem. Much has been achieved, but there is still much to do. The study of Alzheimer's disease has stimulated the development of a wonderful array of investigative tools, but the conceptual and operational principles directing their application need to be re-examined. Alzheimer believed that the scientific study of psychiatric disorders should be rooted in clinical practice; if he were alive today he would no doubt agree that it should also be based on firm epidemiological foundations.

JAMES LINDESAY, *Senior Lecturer in Psychogeriatrics, UMDS, London SE1 9RT*

Clinical and Neuropsychological Aspects of Closed Head Injury. By JOHN RICHARDSON. London: Taylor & Francis Ltd. 1990. 351 pp. £40.00 (hb), £19.00 (pb).

This is one of a series of books under the general heading of Brain Damage, Behaviour and Cognition: Developments in Clinical Neuropsychology. The series arose in response to the very substantial developments and increasing interest in neuropsychology in recent years, and it endeavours to provide an up-to-date overview of research in different areas of interest.

The present text provides an extremely competent and comprehensive examination of closed head injury, with particular reference to the very important neuropsychological contributions in this area.

The book is divided into seven chapters, beginning with a review of issues relating to the definition of closed head injury, and including critical coverage of ICD and the Glasgow Coma Scale. It also provides epidemiological data, and discusses aetiological considerations. Chapter 2 examines the different types of damage associated with closed head injury, and challenges some well-established beliefs in this area.

Memory impairment after closed head injury is discussed in great detail, with reviews of the literature pertaining to retrograde amnesia, post traumatic amnesia, and more longstanding disorders of memory function. Other cognitive abilities are also fully discussed, with reference to specific neuropsychological measures where appropriate.

I was particularly impressed by the chapter entitled "Subjective Complaints and Personality Disorders", and the discussion of the post-concussional syndrome is the best I have read. Richardson concludes that "Such a condition probably represents a long-term neurotic reaction to the short-term organic consequences of head injury".

The final chapter concerns mechanisms of recovery and rehabilitation. It highlights the great need for evaluative research to further our understanding of effective rehabilitation techniques. I am sure that all who work in this field would strongly support this point.

This book is very user-friendly. Each chapter contains a succinct conclusion, and there is also a very useful further reading section with references arranged under various sub-headings. It is an excellent text in an important field which, in my opinion at least, meets the series editors' intention to provide "an indispensable source of information for undergraduates, postgraduates, clinicians and researchers in psychology, speech pathology and medicine".

RICHARD M. BLUNDEN, *Senior Clinical Psychologist, The Royal London Hospital, London E1 1BB*

A History of Medicine in Papua New Guinea. Edited by SIR BURTON G. BURTON-BRADLEY. Kingsgrove, NSW: Australasian Medical Publishing Company 1990. 342 pp. Aus$59.95.

This is, as we may expect, the history of Western biomedicine, not of Melanesian health and sickness-related practices in general. It would be churlish to criticise the first European medics in Papua and New Guinea from the perspectives of hindsight, but this volume itself presents a rather Whiggish account and one independent of any apparent knowledge of local social structure. Indigenous medicine is limited to a rather folkloric and decontextualised collection of recipes and spells.

Nevertheless, for the future social historian there is much of interest in this period of late imperialism when doctors served as magistrates, colonial officials or even as the Government Anthropologist. In a setting where medical facilities and daily life were segregated, we learn of the treatment of venereally-afflicted patients in the prison hospitals, of the transformation of the local (and somewhat aged) boy scouts into medical assistants, and the prohibition of all alcohol use by the local inhabitants until 1963. Some contributors do however deal with the development of health services in relation to different patterns of colonisation and the development of a capitalist market economy, for this mixed collection – in part descriptive history, in part personal reminiscence by the principal actors themselves. A fuller account of how the different medical systems interact and how the patients experience their illness, can be found in Frankel and Lewis' *A Continuing Trial of Treatment: Medical Pluralism in Papua New Guinea* (1989).

Of particular interest to psychiatrists will be Dr Tamarua and Professor Burton-Bradley's personal account of the development of psychiatry, notwithstanding the authors' rather dated attacks on some anthropological straw men (and women). Some of their suggestions for example on cultural "grandiosity' and on the institutionalisation of serious psychopathology are open to a number of questions.

They cite W. H. R. Rivers, the British anthropologist and psychiatrist who briefly worked in the area and is now better known as a pioneer of experimental psychology at Cambridge and UCL: his diffusionist theory of competition between *kava* and *betel* users is briefly referred to, but without the more recent evidence of Brunton (*The Abandoned Narcotic: Kava and Cultured Instability in Melanesia*, 1989). A separate but brief chapter is devoted to Rivers, still a commanding figure for the psychological and social sciences but one curiously neglected by psychiatrists.

ROLAND LITTLEWOOD, *Director, Centre for Medical Anthropology, University College London*

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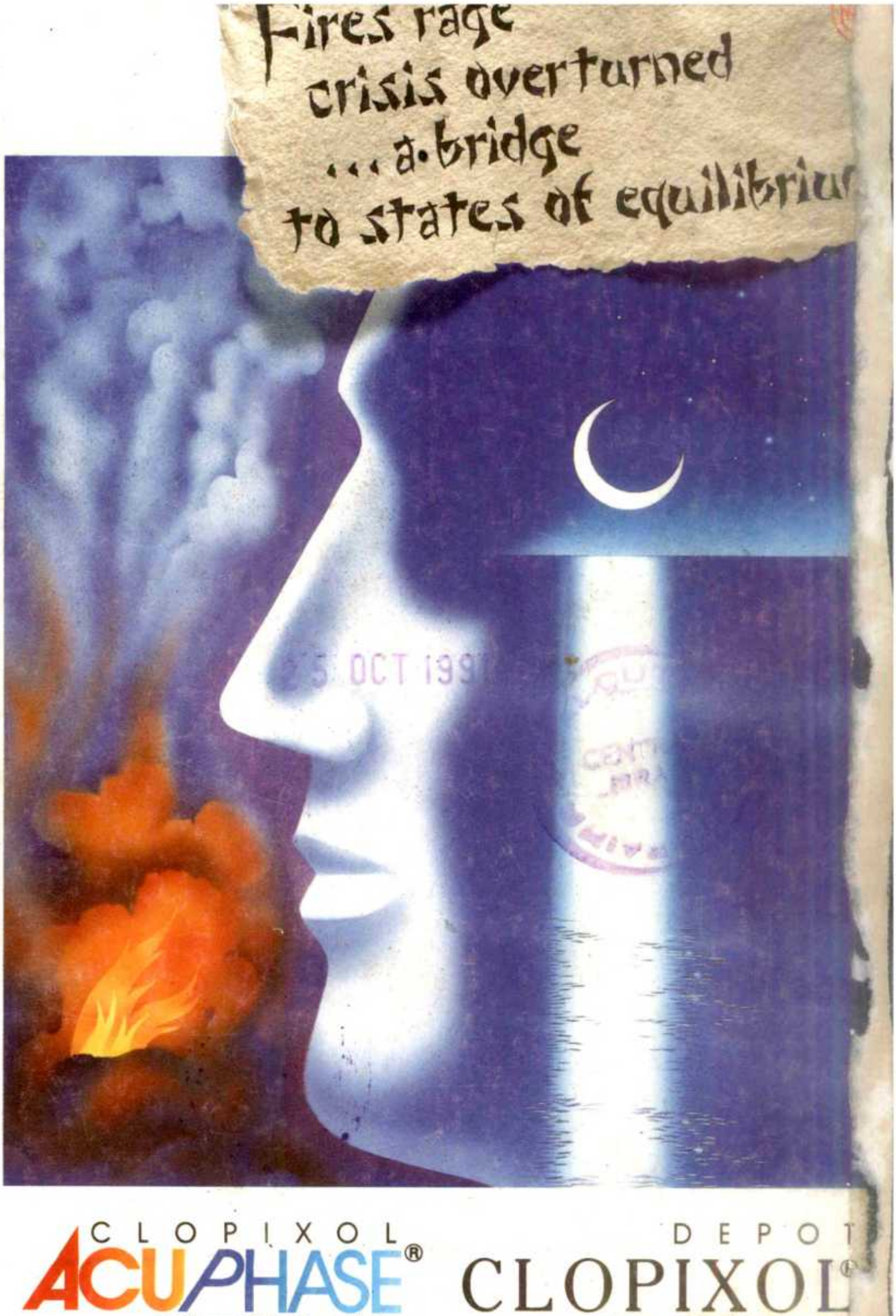

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